THE LANCET.

A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology, Chemistry, Pharmacology, Public Health, and News.

Telegrams—LANCET, WESTRAND LONDON *Telephone*—GERRARD 5356 *Offices*—423, Strand, London, W.C. 2.

No. XII. OF VOL. I., 1921. No. 5090. Vol. CC. LONDON, SATURDAY, MARCH 19, 1921. Founded 1823. Registered as a Newspaper. Published Weekly. Pp. 112—Price 1s. Annual Subscription Inland £2 2s. Abroad £2 10s.

OF NATIONAL IMPORTANCE. 38 Illus. 30s. net, postage 1s.
Dedicated to The Rt. Hon. C. ADDISON, M.P., M.D.
Introduction by Sir G. NEWMAN, K.C.B.

HEALTH of the INDUSTRIAL WORKER.
By E. L. COLLIS, M.D., and M. GREENWOOD, M.R.C.P.
London: J. & A. Churchill, 7, Great Marlborough-street, W. 1.

39 Plates. 467 Text-figs. £2 2s. net, postage 1s.

GASK AND WILSON'S SURGERY.
"*This is a really excellent book of its kind. It is to be recommended as a sound investment for the undergraduate, for the post-graduate who is revising his more elementary knowledge preparatory to one of the higher examinations in surgery, and for the general practitioner who needs a book of reference.*"—GUY'S HOSP. GAZETTE.
London: J. & A. Churchill, 7, Great Marlborough-street, W. 1.

OXFORD MEDICAL PUBLICATIONS.

JUST PUBLISHED.

A PHYSICAL INTERPRETATION OF SHOCK, EXHAUSTION, AND RESTORATION.
AN EXTENSION OF THE KINETIC THEORY.
By GEORGE W. CRILE, M.D., Professor of Surgery, School of Medicine, Western Reserve University; Visiting Surgeon to the Lakeside Hospital, Cleveland, Ohio, U.S.A.
Crown 4to. Cloth. Fully Illustrated. 25s. net.

SKIN DISEASES IN GENERAL PRACTICE: THEIR RECOGNITION AND TREATMENT. [*Second Edition.*
By HALDIN DAVIS, F.R.C.S., M.R.C.P., Dermatologist to the Royal Free Hospital and Lecturer on Diseases of the Skin to the London School of Medicine for Women.
Demy 8vo. Cloth. Fully Illustrated in Colour and Black-and-White. 25s. net.

Henry Frowde and Hodder & Stoughton, 17, Warwick-square, Newgate-street, London, E.C. 4.

By J. SIM WALLACE, D.Sc., M.D.
CHILD WELFARE.
5s. net.
Baillière, Tindall & Cox, 8, Henrietta-street, Covent Garden.

BY LIEUT.-COL. ROBERT HENRY ELLIOT.
M.D., B.S. Lond., F.R.C.S. Eng., I.M.S. retd.

GLAUCOMA: 4s. net.
A HANDBOOK FOR THE GENERAL PRACTITIONER.

GLAUCOMA 25s. net.
A TEXT-BOOK FOR THE STUDENT OF OPHTHALMOLOGY.

THE INDIAN OPERATION OF COUCHING FOR CATARACT.
7s. 6d. net. H. K. Lewis and Co. Ltd.

TROPICAL OPHTHALMOLOGY.
With 7 Plates & 117 Illus. 31s. 6d. net. The Oxford Med. Publications.

ON DISEASES of the LUNGS and PLEURÆ, including TUBERCULOSIS and MEDIASTINAL GROWTHS.
By SIR R. DOUGLAS POWELL, Bart., K.C.V.O., M.D. Lond., F.R.C.P., Physician-in-Ordinary to H.M. the King, &c.; and SIR P. HORTON-SMITH HARTLEY, C.V.O., M.A., M.D. Cantab., F.R.C.P., Phys., St. Bart.'s Hosp.; Senior Phys., Brompton Con. Hosp.
SIXTH EDITION. With Plates from Original Drawings (6 in colours) and other Illustrations in the Text. Demy 8vo. 42s. net.
"..... of remarkable value. As for treatment, this book is a useful milestone, showing the progress made in recent years."—THE LANCET.
London: H. K. Lewis & Co. Ltd., 136 Gower-street, W.C. 1.

Now Ready. With 2 Plates and other Illustrations.
Crown 8vo. 5s. net; postage 4d.
BACKWATERS OF LETHE.
SOME ANÆSTHETIC NOTIONS.
By G. A. H. BARTON, M.D.,
Author of "A Guide to the Administration of Ethyl Chloride."
"Many things worth remembering."—THE LANCET.
London: H. K. Lewis & Co. Ltd., 136 Gower-street, W.C. 1.

LEWIS'S CIRCULATING LIBRARY.
MEDICAL and SCIENTIFIC BOOKS.
EASTER, 1921.
All Departments will close March 25th-28th inclusive.
136 Gower-street and 24 Gower-place, London, W.C. 1.

BY P. LOCKHART-MUMMERY, F.R.C.S.

DISEASES OF THE COLON AND THEIR SURGICAL TREATMENT,
AND
DISEASES OF THE RECTUM AND ANUS.

Baillière, Tindall & Cox, 8, Henrietta-street, Covent Garden.

Pp. viii. + 262, with 51 Illustrations. Price 8s. 6d. net.
DISORDERS OF THE HEART.
By ALEXANDER BLACKHALL-MORISON, M.D., F.R.C.P., Consulting Physician to the Great Northern Central Hospital, &c.
"*The book merits careful perusal and consideration, as it contains many striking criticisms of current theories and a new marshalling of ascertained facts.*"—BRITISH MEDICAL JOURNAL.
Baillière, Tindall & Cox, 8, Henrietta-street, Covent Garden, W.C. 2.

STERILITY IN WOMEN.
By ARTHUR E. GILES, M.D., B.Sc., Ch.B., F.R.C.S., M.R.C.P.
Senior Surgeon to the Chelsea Hospital for Women, Gynæcologist to the Prince of Wales's General Hospital, Tottenham.
Demy 8vo. Cloth. 243 pages, Illustrated. Price 10s. net.
"For the General Practitioner this is an ideal book, full of information."—MEDICAL WORLD.
"The best that has been written on the subject."—BRIT. MED. JOUR.
Henry Frowde, Hodder & Stoughton, 17, Warwick-sq., Newgate-st., E.C. 4.

BY THE SAME AUTHOR.
DISEASES OF WOMEN (with SIR JOHN BLAND-SUTTON). 7th Edition. William Heinemann.
GYNÆCOLOGICAL DIAGNOSIS. } Baillière,
AFTER RESULTS OF ABDOMINAL OPERATIONS. } Tindall & Cox

A New Work

BANDLER'S THE ENDOCRINES

Just Ready

Dr. Bandler used glandular extracts in his gynecologic practice before others would credit the value of such therapy. It is around this first-hand knowledge he has written his book. He covers the subject completely, from its development to the application of the knowledge in diagnosis and treatment. The book appeals to the practitioner because it gives him the modern conception of endocrinology. It appeals to the diagnostician because it stresses the diagnosis of many conditions that are frequently attributed to some secondary cause. It appeals to the neurologist, the alienist, and the criminologist because it shows conclusively that the endocrines are directly responsible for many nervous conditions, for abnormalities of mind, and for criminal minds. It appeals to the gynecologist because it is in the practice of gynecology that the greatest advances have been made in glandular therapy.

Octavo of 486 pages. By S. WYLLIS BANDLER, M.D., Professor of Gynecology, New York Post-Graduate Medical School and Hospital. Cloth, 35s. net.

Sent, Carriage Paid, on Receipt of Price.

W. B. SAUNDERS COMPANY, Ltd., 9, Henrietta Street, LONDON, W.C. 2.

"KLONDOL"

The clean-working Antiseptic and Disinfectant of the "LYSOL" class.

IT DISSOLVES TO MAKE A PERFECTLY TRANSPARENT SOLUTION.

IT IS NON-IRRITANT AND DOES NOT BENUMB THE HANDS.

IT EFFECTIVELY "WIPES UP" BACTERIA.

IT FORMS AN IDEAL WASH AND DOUCHE.

Particulars and Samples on Application to the Manufacturers—

EDWARD COOK & CO. Ltd., BOW, E. 3.

Valentine's Meat-Juice

For **Quieting** the **Irritable Stomach**, for **Aiding** the **Digestion** and for **Sustaining** and **Strengthening**, **Valentine's Meat-Juice** is **Extensively Employed** in the treatment of

Phthisis.

Dr. Gouel, *Physician in Chief of the Villepinte Hospital for Consumption, Paris, France:* "VALENTINE'S MEAT-JUICE succeeds well in cases of Anæmia and in the treatment of Tuberculosis in an advanced stage when the stomach is intolerant."

Dr. Pietro Borromeo, *Physician and Surgeon of the Hospital of Rome, Italy:* "I have tried VALENTINE'S MEAT-JUICE in the Tuberculosis Division of the Hospital of the Holy Spirit, and have proved the great advantages that it renders for the nutrition of the consumptive. Pleasant to the taste of the most fastidious of the sick, it does not irritate the stomach, but stimulates the peptogastric functions so as to improve notably the appetite, even in cases of continuous and high fever and of extreme loss of strength."

For sale by European and American Chemists and Druggists.

VALENTINE'S MEAT-JUICE COMPANY.

RICHMOND, VIRGINIA, U. S. A.

D 125

THE LANCET.

No. 5090. LONDON, SATURDAY, MARCH 19, 1921. Vol. CC.

CONTENTS.

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT.

A CLINICAL LECTURE on Subphrenic Abscess. Delivered at Guy's Hospital on Jan. 12th, 1921. By C. H. FAGGE, M.S.Lond., F.R.C.S. Eng., Surgeon to Guy's Hospital 571

ORIGINAL ARTICLES.

The Value of the Quasi-Continuous Temperature Record in the Early Diagnosis and Prognosis of Tuberculosis. By Sir GERMAN WOODHEAD, K.B.E., M.D., LL.D., Professor of Pathology, University of Cambridge; and P. C. VARRIER-JONES, M.A. Camb., M.R.C.S., L.R.C.P. Lond., Foundation Scholar, St. John's College, Cambridge. Report to the Medical Research Council. —(*Illustrated*) 573

Heliotherapy in the High Alps. By A. ROLLIER, M.D., Medical Director of the Heliotherapeutic Institutions at Leysin, Switzerland. —(*Illustrated*) 582

The Chemical Estimation of Gastric Function by the Test Meals of Ewald and Boas. By J. H. RYFFEL, B.Ch.Camb., F.I.C., Clinical Chemist, Guy's Hospital.—(*Illustrated*) 586

The Ideal Element in Medicine. Illustrated by the Life of John Hunter. By H. H. BASHFORD, M.D., B.S. Lond.—(*To be concluded*) 624

CLINICAL NOTES:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A Case of Gunshot Wound in which the Bullet was Removed by Means of the Œsophagoscope. By G. N. BIGGS, M.B., B.S. Durh., Lieut.-Colonel, R.A.F.M.S. 589

A Note on Periarticular Abscess after Scarlet Fever. By BERNARD E. MYERS, C.M.G., M.D. Edin., M.R.C.P. Lond., Physician to Out-patients, Royal Waterloo Hospital for Children and Women 589

A Case of Double Dorsal Traumatic Dislocation of the Hip. By ALAN RANDLE, M.C., M.D.Lond., Assistant Medical Officer, Bermondsey Hospital 589

MEDICAL SOCIETIES.

Royal Society of Medicine: Combined Meeting of Clinical, Medical, and Surgical Sections 590
Section of Laryngology 592
Medical Society of London ... 593
Liverpool Medical Institution 595
Liverpool Medical Institution and Manchester Medical Society 595
London Assoc. of the Medical Women's Federation 596
Sheffield Medico-Chirurgical Society 596

REVIEWS AND NOTICES OF BOOKS

Psychology and Psychotherapy. By William Brown, M.A., M.D. Oxon., D.Sc. 597
Standard Method of Testing Juvenile Mentality by the Binet-Simon Scale. By Norbert J. Melville 597
The Intelligence of School Children. By Lewis M. Terman 597
The Operative Story of Goitre. By William S. Halsted 597
For the Limbless. A Handbook Compiled by Captain H. H. C. Baird, D.S.O. 598
Practical Bacteriology. Sixth edition. By E. R. Stitt, M.D., LL.D. 598
Diseases of Children. Fifth edition. By John McCaw, M.D.R.U.I., L.R.C.P. Edin. 598
Blood Pictures. Second edition. By Cecil Price-Jones, M.B. Lond. 599
First Aid to the Injured and Sick. Eleventh edition. By F. J. Warwick, M.B.Cantab., M.R.C.S., and A. C. Tunstall, M.D., F.R.C.S., L.R.C.P. Edin. 599
Psychiatrie. Tome I. Publié sous la direction de Émile Sergent, L. Ribadeau-Dumas, et L. Babonneix. Tomes VII. et VIII. Par Ritti and Others 599
Manual of Psychiatry. Fifth edition. By Aaron J. Rosanoff, M.D. 599
The Story of My Life. By W. D. Spanton, F.R.C.S. 599
Proceedings of the Royal Society of Medicine 600
La Médecine 600

NEW INVENTIONS.

A Double Retinoscope.—(*Illustrated*) 600

THE SERVICES.

Royal Naval Medical Service 612
Royal Army Medical Corps ... 612
Royal Air Force 612

LEADING ARTICLES.

THE CEREBRO-SPINAL FLUID AS AN AID TO DIAGNOSIS 601
THE BRISTOL SMALL-POX OUTBREAK 601
THE DANGEROUS DRUGS ACT AND THE DRAFT REGULATIONS. 602

ANNOTATIONS.

A Qui Mieux Mieux 603
Light as a Remedial Agent ... 603
Fracture-Dislocation of the Neck with Paralysis: Recovery 604
Disappearance of Congenital Syphilis in the Second Generation 604
Medical Tariff Then and Now 605
Radium Treatment of Leukæmia 605
Pleural Reflex or Gas Embolism? 606
Filaria Loa and its Insect Host 606
The Handicap of the Left-handed 606
The Morphological Diagnosis of Plague.—(*Illustrated*) 607
The Thymus Gland in Graves's Disease 607

THE GENERAL MEDICAL COUNCIL.

Reappointment of Members .. 608
Restoration of Names to the Register 608
Reciprocity with Spain 608
Indian Universities and Midwifery 608
The Buff Telephone Book 608
Correction of the Medical Register 608

SPECIAL ARTICLES.

The Langham Telephone Exchange: Medical Men's New Numbers 608
Vital Statistics of 1919. Registrar-General's Annual Report 608
Aeroplane Ambulances.—(*Illustrated*) 610
Medicine and the Law 610
Notes from India 611
Urban Vital Statistics 615

CORRESPONDENCE.

A Controlled Study of Sanatorium Results (Dr. Thompson Campbell) 612
The Pellagra Outbreak in Egypt (Dr. J. I. Enright) 613
Referred Pain (Mr. H. Walter Verdon) 613
The Full Use of Artificial Limbs (Mr. George A. Ponsonby) 614
The Labelling of Thyroid Tablets (Messrs. Parke Davis and Co.) 614
As Others See Us (Dr. Harry Roberts) 614
Dangerous Drugs Act, 1920 615

PARLIAMENTARY INTELLIGENCE.

Notes on Current Topics: Opposition to New Drug Regulations.—A Home Office Committee on the Regulations 615
House of Lords: Criminal Law Amendment Bill 616
House of Commons: Schemes for Welfare of the Blind.—India and Dangerous Drugs Act.—Insurance Committees and New Medical Records.—Death-rate of Infants.—The Treatment of Cancer.—Suggested Reduction of Medical Staff.—Dental Legislation.—Medical Staff of Pensions Department 617

MEDICAL NEWS.

University of Cambridge: Degrees conferred 620
University of Oxford: Memorial to Sir William Osler.—Diploma in Public Health.—Degree in Medicine.—Degree Days 620
University of Edinburgh: Tait Memorial Chair 620
University of Glasgow 620
University of Bristol: Passlist 621
Royal College of Surgeons of England: Diplomas and Licences conferred 621
Royal Faculty of Physicians and Surgeons of Glasgow ... 621
The Dublin Hospitals 588
Middlesex Hospital Medical Society 595
Queen's Hosp., Birmingham 596
Red Cross Sunday 602
Donations and Bequests 611
Literary Intelligence 612
Federation of Medical and Allied Societies 621
Tuberculosis Society of Great Britain and Ireland 621
Rontgen Society 621
National Institute of Industrial Psychology 621
London Homœopathic Hosp. 622
Scottish Board of Health 622
Liverpool Royal Southern Hos. 622
University of London 622
North-East London Post-Graduate College 622
Hospital Conditions in Bristol 622
The late Dr. E. H. Buckell 622

NOTES, SHORT COMMENTS, &c.

Colonial Health Reports 626
A Tuberculosis Record Card 626

Books, &c., received 622
Medical Diary 623
Appointments 623
Vacancies 623
Births, Marriages, and Deaths 624
Communications received 624

Text-Book of Tracheo-Bronchoscopy

(Technical and Practical).

By **Dr. M. MANN.** Translated by A. R. MOODIE, M.A., M.D., Ch.B., F.R.C.S. With 50 Illustrations, 5 Plates in the Text, and 10 Coloured Plates in the Appendix. Crown 4to. 31s. 6d. net, postage 1s.

"Should prove a handy work of reference to the general practitioner."—MEDICAL TIMES.

Atlas of Killian's Tracheo-Bronchoscopy. By **Dr. M. MANN.** Translated by THOMAS GUTHRIE, M.A., M.B., B.C., F.R.C.S. With 15 Coloured Plates. Demy folio. 27s. 6d. net, postage 1s. 6d.

"This atlas should be carefully studied by every laryngologist and endoscopist."—BRITISH MEDICAL JOURNAL.

A Study in the Epidemiology of Tuberculosis. With Special Reference to Tuberculosis of the Tropics and of the Negro Race. By GEORGE E. BUSHNELL, Ph.D., M.D., Colonel, United States Army (Medical Corps), retired. Demy 8vo. 20s. net, postage 1s.

JOHN BALE, SONS & DANIELSSON, LTD., 83-91, Great Titchfield Street, London, W. 1.

JUST PUBLISHED. Medium 8vo. 912 pages. **32/6 net.**

THE

CLINICAL STUDY & TREATMENT

OF

SICK CHILDREN.

By **JOHN THOMSON**, M.D., F.R.C.P.Ed., Consulting Physician to the Royal Edinburgh Hospital for Sick Children.

THIRD EDITION.

Rewritten and Greatly Enlarged. With 249 Illustrations.

OLIVER & BOYD.

LONDON: 33, Paternoster Row. EDINBURGH: Tweeddale Court.

THE SURGERY OF THE HEART

By Sir CHARLES A. BALLANCE,

K.C.M.G., C.B., M.V.O., M.S., F.R.C.S.,
Consulting Surgeon to St. Thomas's Hospital, &c.
Illustrated by 48 Figures. Demy 8vo. 10s. 6d. net.
Macmillan & Co.

ESSAYS ON THE SURGERY OF THE TEMPORAL BONE

By Sir **CHARLES A. BALLANCE** K.C.M.G.,
C.B., M.V.O., M.S., F.R.C.S.,
Consulting Surgeon to St. Thomas's Hospital, &c.
Illustrated by 125 Plates (40 in Colour) and 120 Figures. In 2 Volumes. Medium 4to. Price 5 guineas.

MACMILLAN & CO.

STAMMERING, SPEECH DEFECTS, VOICE TRAINING

BEHNKE METHOD. Est. 1882.

Carried on by Miss BEHNKE, 39, Earl's Court-square, S.W. 5.

"Pre-eminent success in the education and treatment of stammering and other speech defects."—*The Times.*

"Thoroughly physiological principles."—*The Lancet.*

"The method is scientifically correct and perfectly effective."—*Guy's Hospital Gazette.*

From a Harley Street Specialist.—"The condition is to a great extent a psychical one, and the admirable results obtained by yourself and your parents have in my opinion been to a great extent due to your personal psychical influence over your subjects. You are at liberty to use this expression of my opinion." *(This letter may be seen.)*

"Stammering: Cleft Palate Speech: Lisping." 2s. 4d. post free.
Of Miss BEHNKE, 39, Earl's Court-square, S.W.

STAMMERING

W. J. KETLEY, "Tarrangower," Brondesbury, N.W.

(30 years colleague of late B. BEASLEY, Brampton Park, Huntingdon.) Those interested in the subject should write for his book, which will be sent post free.

ANGINA PECTORIS

WALTER VERDON, F.R.C.S.

This work introduces abundant proof that angina pectoris arises not from the heart but from the stomach, and lays down rules of successful treatment.

Sir JAMES MACKENZIE.—"*A storehouse of facts and observations of the greatest value.*" ..... "*A classic.*"

The Rt. Hon. Sir CLIFFORD ALLBUTT.—"*I see much of great interest in your beautifully printed work.*" ..... "*In my own work I was hankering after some accommodation between your view and my own.*"

MEDICAL TIMES.—"*Wealth of practical detail.*"

MOULTON, 4, Church-street, Brighton. Demy 8vo. Pp. 414. 18/6.

Price 1s. With Illustrations

APPLICATION OF TRUSSES

to HERNIÆ. Clinical Lecture delivered at King's College Hospital. By the late JOHN WOOD, F.R.S., Senior Surgeon to King's College Hospital. Reprinted from "Medical Examiner."

London: Matthews Brothers, 10, New Oxford-street, W.C.

THE LANCET

SUBSCRIPTIONS.

THE LANCET is published on **Friday** morning each week, price **1s.** The postage, inland, is one penny for the first six ounces and one halfpenny for the next six ounces; abroad (at present), one halfpenny for each two ounces.

The rates of subscriptions are as follows:—

Inland.			
One Year	... ...	£2	2 0
Six Months	... ...	1	1 0
Three Months	... ...	0	10 6
The Colonies and Abroad.			
One Year	... ...	£2	10 0
Six Months	... ...	1	5 0
Three Months	... ...	0	12 6

Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London County Westminster and Parr's Bank, Covent Garden Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C. 2.

ADVERTISING.

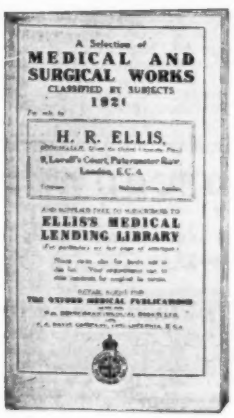
Books and Publications	Four Lines and under £0 5 0
Official and General Announcements	
Trade and Miscellaneous Advertisements	Every additional Line 0 1 0

Quarter Page, £2 10s. Half a Page, £5. An Entire Page, £10.
Special terms for Position Pages.

Advertisements (to ensure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remittance.

Answers are now received at this Office, by special arrangement, to Advertisements appearing in THE LANCET.

Offices: 423 and 424, Strand, London, W.C. 2; and 1, 2, and 3, Bedford-st.



ELLIS'S MEDICAL LIBRARY

(Medical, Surgical, Veterinary, Dental) *Telephone City 8881.*

BOOKS OF ALL PUBLISHERS FORWARDED ON APPROVAL BY RETURN OF POST.

ORDERS FOR INDIA, THE FAR EAST, AND NEW ZEALAND, &c., Sent, Carefully Packed, by VALUE PAYABLE POST.

EXCELLENT CATALOGUES. LATEST EDITIONS.
Carriage-Paid Circulating Library. Personal Attention to all Communications.

Cables and Telegrams: Nuhooque, Cent, London.

H. R. ELLIS, Medical Bookselling Specialist,

9, LOVELL'S COURT, PATERNOSTER ROW, LONDON, E.C. 4.

Ask This Useful List Sent Free. (100 yards from St. Paul's Cathedral.)

A Clinical Lecture
ON
SUBPHRENIC ABSCESS.

Delivered at Guy's Hospital on Jan. 12th, 1921,

BY C. H. FAGGE, M.S. LOND., F.R.C.S. ENG.,
SURGEON TO GUY'S HOSPITAL.

THE inferior concave surface of the diaphragm is so extensive that in a detailed consideration of the ætiology of abscesses in relation to it we must take into account all the inflammatory conditions of the solid and hollow viscera which lie, even in part, above the level of the infracostal line. Even then we have omitted one organ, the appendix, which formerly, if not now, was regarded as the most common agent in the causation of subphrenic infection. No paper on this subject written during the past 12 years has failed to draw from the store of information which Barnard[1] accumulated from analysis of 76 cases at the London Hospital. From these and others available in 1909 when I lectured[2] on this subject, I was led to the conclusion that about half the cases of subphrenic infection arose from appendicitis. If to-day I suggest that nearly 80 per cent. of such abscesses are due to gastric or duodenal ulceration, we may perhaps venture to argue that the general undertaking of early operation for appendicitis and the adoption of the Fowler position after such operations have been the two chief factors in diminishing the importance of this affection in this relation.

As is obvious from a consideration of the relations of the under surface of the diaphragm, it has been customary to point out that such collections may be intraperitoneal or extraperitoneal. While it has always been admitted that the latter are relatively rare, I should venture to question the existence of a true extraperitoneal abscess arising primarily from an infective process in one of the abdominal viscera, if we accept those which may arise in the retroperitoneal tissues after gunshot wounds, or the rare occurrence of infection of the non-peritoneal surface of the diaphragm by extension from a liver abscess or some other similar condition. Such abscesses, particularly the chronic ones, are so well shut off that their original formation in a loculus of the general peritoneal is easily lost sight of. I can recall only one case on which I have operated in which there was finally any real doubt that it began as an intraperitoneal collection.

CLINICAL TYPES OF ABSCESS.

We have to look for two clinical types of abscess:—

1. The subphrenic abscess, which results from what Moynihan called the subacute or chronic perforation of a hollow viscus, is sometimes acute in onset. Owing to former localising peritonitis, the neighbourhood of the base of an ulcer of the duodenum or stomach is shut off from the general peritoneal cavity and either by direct perforation or extension of infection through the wall of the affected viscus, an abscess forms which is at first limited by the adjacent organs, and as it enlarges points on the abdominal wall. Such an abscess originating from a duodenal ulcer is usually subhepatic, that due to gastric ulceration may point to the right of or to the left of the suspensory ligament, may be perisplenic, or if the perforation has occurred into the lesser sac a retrogastric abscess arises. Similar abscesses may arise from extension of infection from any of the subphrenic organs: thus cases have been recorded from the Mayo Clinic,[3] in which such an abscess resulted from rupture of or operation on the gall-bladder. It is conceivable that some of the subphrenic abscesses originating from diseased appendices—not only of the intraperitoneal variety but those which formerly were described as extraperitoneal—were of a similar pathology and due to the subacute perforation of a hollow viscus. I am inclined to regard the latter of no great practical importance at the present time, for owing to early operation we do not see such cases now.

During the late war perforation of the viscera of the upper abdomen by infected missiles not infrequently led to abscess formation which was usually on the left side owing to the frequency of involvement of the stomach.

Capt. R. was operated on by Captain Owen Richards at a C.C.S. for a gunshot wound of the left epigastrium on Dec. 21st, 1915—a through-and-through wound of the stomach was sutured and the peritoneum drained. He was admitted to Fishmongers Hall Hospital on Feb. 6th, 1916. He vomited up pus on the morning of admission and on the 7th his temperature was 103° F. The left base was dull up to the scapula and a needle withdrew pus; an abscess was drained by excision of part of the tenth left rib. A week later this was explored further and proved to be subphrenic and perisplenic. In March he coughed up two ounces of pus. He still continued to run an irregular temperature and did not pick up. In July he was readmitted to hospital with pyrexia and cough. Much difficulty was experienced in the interpretation of his physical signs and of an area opaque to X rays at the left base, but finally exploration disclosed pus, and an empyema of 10 ounces was drained by resection of part of the ninth rib. His ultimate complete recovery was due to Captain Richards's skill.

2. However, it is not as a primary lesion that the presence of pus under the diaphragm is so often in question in surgical practice, but as a complication in the after-treatment of a patient who has gone through an operation safely for an abdominal lesion, usually an emergency but sometimes an upper abdomen operation of some severity. As I have suggested, these cases differ somewhat in type from those under the first heading: they are more insidious and tax one's diagnostic skill to the utmost. Such a complication in appendix cases is now unusual. If pus forms after operation it usually gravitates into the pelvis, where it is more easily recognised and certainly does less harm than pus in relation to the diaphragm.

Capt. C. was seen with Dr. K. L. Bates on Jan. 26th, 1920. He had been ill about a week with pain in the right iliac fossa, which after two or three days diminished and then again increased and passed into the right loin; a lump appeared and pyrexia increased to 101° each night. A large retrocæcal abscess was drained, the appendix, gangrenous terminally, was removed with a large concretion. His temperature was never quite normal and on Feb. 26th rose to 104°. The right loin was tender and the right base dull up to the angle of the scapula. The track of the drainage-tube was opened up and drained into the loin, the chest was explored in three places without result. On March 8th Dr. H. French drew off 42 ounces of clear fluid from the right chest and later Dr. Bates evacuated 30 and 20 ounces, but pyrexia of 100° to 101° continued, and on the 19th there was an area of œdema over the liver. On the 20th I opened up the old wound, evacuated a small collection between the liver and the diaphragm, and drained a right empyema of 20 to 30 ounces by resection of the seventh right rib. Finally, he rewarded Dr. Bates and the nursing staff by getting well.

Recently a trained nurse was sent into my ward with a perforated gastric ulcer, which was closed within five hours; suprapubic drainage was carried out. Her temperature remained up and the pulse was rapid. Impaired resonance at the left base led to exploration and the evacuation of clear fluid. She developed a tender area below the left costal margin, which was incised, and a left subphrenic abscess was drained, but ultimately she died.

The first of these two cases serves well as an example of what Barnard termed a right anterior intraperitoneal abscess, which is due either to perforation of the duodenum or stomach, to liver abscess, or to appendicitis. If the latter, usually the case will be of the type outlined above, where rather late operation evacuates a retrocæcal abscess. When a perforated duodenal or gastric ulcer gives rise to such an abscess usually it points in the right hypochondrium to the right of the falciform ligament; its margins are to the right and above the right costal margin, to the left the bulging falciform ligament, and below a band of rigidity and tenderness extending from the umbilicus to the right ribs where a band of omental adhesions shuts it off from the general peritoneal cavity. Gas either escapes from the stomach, or is formed in the abscess cavity, so that the centre of the dull area is tympanitic

[1] Brit. Med. Jour., 1908. [2] Guy's Hosp. Gaz., 1909.
[3] Judd: Papers of Mayo Clinic, 1915.

and amphoric sounds are heard over it. Similarly had the abscess in the last case I quoted been allowed to remain a few days it would have extended to the right, pushing the falsiform ligament before it, and might have pointed in the left hypochondrium as a gas-containing abscess.

DIAGNOSIS.

In my experience few conditions have given me so much difficulty as the diagnosis of this condition.

History.—We have as our first guide the history. Thus a story of continued indigestion may suggest a lesion of the stomach or duodenum as the origin of the abscess, and therefore its probable location. We may have carried out an operation for the suture of a perforated duodenal ulcer and so be suspicious of infection under the right leaflet of the diaphragm. We know from X ray evidence and from actual observation during operations that injuries of the diaphragm of which operative manipulations even of the gentlest possible degree form no inconsiderable part lead to a temporary paralysis of the affected half of the muscle, just as does any inflammatory lesion in its neighbourhood. We have to assess the importance of this factor in the causation of subphrenic infection after major upper-abdomen operations such as difficult and prolonged common bile-duct operations in fat subjects or partial gastrectomies in enfeebled elderly patients. We must constantly bear the possibility of such a result of any undue trauma and must set our ingenuity to work to devise a means by which such a paralysis may be eliminated.

As I have pointed out above, the onset of formation of subphrenic infection from a subacute perforation of a gastric ulcer may be acute, whereas the post-operative variety sets in in a most insidious manner. This is not entirely accounted for by the diminished power of reaction of such patients, and it is not easy to suggest an adequate explanation. Barnard laid great stress upon a difference in the mode of onset between the intraperitoneal abscesses from perforation and the extraperitoneal collections which result from a spreading cellulitis. The former were acute, the latter much slower. My personal experience of the latter is so small that I cannot criticise his observation.

Symptoms.—The initial symptoms are: pain, usually the first, and often localised to the spot where later pus is found. It occurs in a large majority of cases, and finally is associated with deep tenderness over the same area. Vomiting may occur once or twice in the perforative type, and hiccough is a very frequent and suggestive symptom. Several times I have seen it most troublesome and persistent until the abscess has been drained adequately.

General signs.—It is upon the general signs of suppuration that we have chiefly to rely, continued or increasing pyrexia of the rocking type, continued or increasing rapidity of pulse, a dirty dry tongue, increasing anæmia, with a complexion of the muddy kind which Barnard so happily termed "the purulent complexion." Sweating is met with frequently, but there is no characteristic change in the bowels as is met with in pelvic abscesses where diarrhœa is so suggestive a sign. I have not seen rigors in uncomplicated cases, and leucocytosis, though always marked, is usually of little value, as it may be due to the antecedent condition, and therefore cannot definitely be attributed to the subphrenic abscess. At the same time, a white count should always be done as soon as the suspicion that all is not well has been aroused. It can then be repeated, probably several times, before occasion for operation arrives. If these examinations show that the white count has fallen after operation for the initial disease—for example, appendicitis—and again risen to a high level, it affords an indication of the presence of pus of no mean value. When we have the clinical picture outlined above, we have usually no difficulty in feeling sure that pus is present somewhere. The difficulty occurs in locating it and, having done this, in finding it.

Local signs of subphrenic abscess.—In the early stages local rigidity with deep tenderness alone may be in evidence, then a swelling gradually appears over which abnormal dullness may be elicited. This may be an extension of normal liver dullness downwards and to the left, but if an abscess is present between the diaphragm and liver the latter is usually not pushed downwards, so liver dullness is not increased downwards as it is with an abscess of the liver, owing to adhesions between the lower liver margin and the parietal peritoneum. For the same reason such a swelling does not move freely on respiration. If of large size the lower thorax may bulge on the affected side, and the circumference of that side may be shown with the tape measure to be increased. Should the abscess become secondarily infected with *B. coli* or other gas-producing organisms the note over the most prominent part will become tympanitic and amphoric and coin sounds may be obtained. Rarely a peritoneal friction sound may be heard over the margins of the swelling. Usually such patients are too ill for a systematic X ray examination and often for any such examination at all, but when it can be undertaken, it may elicit most valuable information by showing that the arch of the diaphragm on the affected side is unduly raised and is immobile. Sometimes the abscess may be demonstrated as a localised dark shadow.

Thoracic signs.—The early signs are those of compression of the base of the lung, which later pass into evidence of pleural effusion which is at first serous and finally becomes purulent. Thus diminished resonance, absence of breath sounds, diminished vocal resonance and tactile vocal fremitus, with possibly a pleuritic rub, may occur in an uncomplicated subphrenic abscess. In such it may be possible to map out the dull area so as to show an upper convex margin at the level of the raised diaphragm, but shortly, as happens in two-thirds of all cases, a secondary pleurisy with effusion will complicate the simple picture of subphrenic abscess. The extent upwards over which the chest signs exist may point to the presence of an effusion, as will a horizontal upper margin of the dullness and displacement of the apex beat to the side opposite to the signs will confirm this suspicion, as such displacement never occurs with an uncomplicated collection below the diaphragm.

Spontaneous Rupture of Subphrenic Abscess.

Of Barnard's 76 cases 23 ruptured into one of the thoracic or abdominal viscera, usually the stomach or bronchus. With more exact methods of diagnosis now at our disposal this is less likely to be allowed to happen as operation will be earlier undertaken, but its possibility must be borne in mind, and when it occurs before an exact diagnosis has been possible it may help to localise the abscess. Such a method of evacuation of the abscess is not to be waited for or counted upon. As in the case of Captain R., it is often difficult to decide whether the pus is coughed up or vomited up, and if the latter, to know which part of the alimentary tract it burst through—i.e., stomach, œsophagus, or duodenum. Further, such subphrenic abscesses which as soon as they become tense can evacuate themselves are exceedingly difficult to locate, as they never become large enough to produce definite signs, and as when the air-passages are involved the pus is replaced by air, the physical signs may often become indefinite or misleading.

Value of the Exploring Needle.

Whenever signs are present which indicate that pus is tracking towards the surface either in the epigastric angle or in the loin, free incision with the knife under general anæsthesia will be the safest method for the drainage, but this condition is unfortunately rare, and in obscure cases the routine use of a wide-bore needle under general anæsthesia on a definite plan has proved a great advance. In either case under a general anæsthetic, of which gas-oxygen is the best, the patient is placed on the affected side and turned three-quarters over on to the face. The use of the exploring needle is particularly indicated when we have to deal with abscesses hidden under the right cupola of the diaphragm; here the needle is introduced boldly to a full three inches and vertical to the surface, deeply through the intercostal space where the signs

are most suggestive, in the posterior scapular or mid-axillary line. If no pus is located it may be inserted in the space above and below up to the upper margin of dullness and as low as the costal margin. This is repeated until all the spaces over the dull area have been explored in the nipple, mid-axillary, and posterior scapular lines. It is often difficult to determine whether the point of the needle is above or below the diaphragm; if the blood which is drawn back into the barrel of the syringe is bright and frothy it certainly comes from the lung, though darker blood may come either from the liver or from compressed lung. Again, a sense of resistance is experienced as the diaphragm is pierced, and the exposed part of the needle or the syringe will, as pointed out by Fürbringer, move with respiration when the needle has passed through the muscle. I have not noticed that temporary inflammatory paralysis of the muscle has vitiated this sign, but this possibility must be borne in mind.

May we not assume that even under normal conditions a needle passed into the lower four spaces to the extent of 3 inches passes through the diaphragm, and when this is raised the subphrenic space will be reached by such a needle even two spaces higher? When clear or turbid is withdrawn at one depth and pus still further in, the diagnosis is clear. I have no experience of any danger through injury to vessels or viscera or risk of carrying infection from the chest to the abdomen by this means. If clear fluid is drawn from the chest alone, this is aspirated by gravity through a long fine tube. If nothing is withdrawn the patient is returned to bed; if pus is found the needle is left in situ and another needle introduced into the space below: if pus is found there the first needle is withdrawn, cleansed, and inserted into a still lower space. The rib to be resected will be that below the lowest space in which pus was found. In any case this must not be higher than the eighth, as above this level it is difficult to shut off the pleura by suturing the diaphragm to the chest wall.

General Outlines of Operation.

Usually there is a positive indication for preference of a particular route, but if none exist the posterior transpleural thoracic route should be chosen. By considerable practice during the war very many surgeons learnt of the value of this route in abdomino-thoracic surgery. In this instance it will be assumed that pus has been found below the diaphragm, and that the needle is still in position. At least 3 inches of the rib below the space in which the needle has been inserted is resected and the diaphragm is incised, but not cut completely through for the same extent. The upper edge of the incision into the diaphragm is then carefully sutured with a continuous catgut stitch to the upper margin of the wound through the parietal pleura and intercostals so as to shut off the pleura; then the abscess may be incised freely and a large rubber tube inserted. In spite of the above precaution on at least two occasions a secondary infection of the pleura, necessitating drainage through the same wound, has ensued in my hands. If pus has been located either by incision or with a needle through the front of the chest or the anterior abdominal wall it is best to establish counter-drainage in the loin at the most convenient spot.

Conclusion.

It may be often that the diagnosis of subphrenic abscess is not definitely settled until pus is found and drained. As I pointed out in the case of Captain R., even then one may be in error as to the relation of the abscess to the diaphragm. If an abscess is found and drained below the diaphragm it may be difficult to be sure that it is not within the liver and that one is, in fact, draining an amœbic liver abscess. Again, the needle may enter one of the multiple abscesses which occur in suppurative pylephlebitis, but in the stage of this disease in which abscesses of any size exist the patient is much more ill, rigors are common, and jaundice is present in its later stages. A suppurating hydatid cyst may give rise to the same signs, but its nature will at once be recognised as soon as the cyst is opened.

THE VALUE OF THE QUASI-CONTINUOUS TEMPERATURE RECORD

IN THE EARLY DIAGNOSIS AND PROGNOSIS OF TUBERCULOSIS.

BY SIR GERMAN WOODHEAD, K.B.E., M.D., LL.D.,
PROFESSOR OF PATHOLOGY, UNIVERSITY OF CAMBRIDGE;
AND
P. C. VARRIER-JONES, M.A. CAMB., M.R.C.S., L.R.C.P. LOND.,
FOUNDATION SCHOLAR, ST. JOHN'S COLLEGE, CAMBRIDGE; TUBERCULOSIS OFFICER, CAMBRIDGE COUNTY COUNCIL.

REPORT TO THE MEDICAL RESEARCH COUNCIL.

SOME years ago,[1] supplementing the observations made by the late Professor Arthur Gamgee, we drew attention to the value of quasi-continuous (half-minute) temperature records in the study of tuberculosis and published a number of typical temperature charts taken from tuberculous patients. We had not then sufficient experience of these records to be able to determine their exact value as an aid to diagnosis and prognosis, but certain oft-recurring features appeared to us to be characteristic of the temperatures induced, not merely by the artificial introduction of tuberculin but also by the auto-inoculation that goes on during the progress of the disease in a consumptive patient. We have been able to follow up to Jan. 1st, 1921, the cases then described and have had the opportunity of noting not only which of them have done well but which of them, not responding to treatment, have gone steadily or intermittently from bad to worse. We have thus accumulated much information as to the value of these quasi-continuous temperature records *not only in diagnosis but in prognosis*. To the histories and temperature charts of the cases already recorded may now be added the experience gained from the study of a number of typical cases[2] which, of great interest in themselves, constitute a broader basis on which to found an opinion as to the value of the method.

Features in the Record of Diagnostic Value.

In our earlier paper in THE LANCET we called attention to the peculiar character of the auto-inoculation temperature curve, and pointed out how closely it corresponds to the post-tuberculin curve. Of its value as a diagnostic feature we had little doubt, and we were inclined to think that its value in prognosis might be almost as great, but for that opinion we had not, at the time, any very sound or sufficient basis. The features in these quasi-continuous records on which we laid stress as of diagnostic value were: (*a*) Somewhat sudden rise of the afternoon and evening temperature, not necessarily steady, but in jerks—temporary exacerbations—and with a general trend upwards; (*b*) continuation at a somewhat high level—above 99° F.—for 8 or 10 hours; (*c*) followed by a rapid fall, sometimes to a subnormal level; (*d*) during the whole day response of the temperature to agents inducing rise or fall—exercise, food, cold or warm drinks—much more readily and through a much wider range than in the healthy individual. A combination of certain of these features gave us (*e*) what we call a "plateau"—a long-continued temperature above 99°, commencing with a sudden rise and ending with a sudden and prolonged descent—which we considered to be diagnostic of tuberculosis; (*f*) elevations more or less marked on the plateau—these we compared to mountain peaks on a highland plateau. Before taking up the general consideration of the importance of these features it may be well to give an account of certain cases, the early histories of which have already been published, and of a number of other typical cases, the history of which affords corroborative evidence of the diagnostic and prognostic value of the quasi-continuous temperature record.

[1] THE LANCET, 1916, i., 495.

[2] In all over 200 of these quasi-continuous 12-, 24-, and 48-hour temperature records of 68 patients have been made and analysed.

CASE 1.—This patient[3] had been kept under observation from June 11th, 1914, until September in the following year. He had passed through a sanatorium, had then been placed under domiciliary treatment for a time, and allowed to do but a certain amount of work. Put on full work the patient at once began "to do badly," for though there were fewer signs of active disease than had been present when he first came under treatment he ceased to put on weight. In September the patient was still working full time, and by the ordinary methods of clinical investigation it would appear that he was holding his own, but from a study of the continuous temperature charts it was evident that the disease was progressing. These temperature curves, we now find, may be taken as representative of those obtained from some dozens of similar cases, and appear to be associated with a progressive tuberculous process. In Fig. 22 the effect of the tuberculous condition on the temperature is characteristic. A fever giving rise to a slightly convex temperature curve extends from late afternoon until 12 midnight or later. The diurnal range of variation is somewhat greater than normal, but here the rise is gradual, as is also the fall, though with this latter are associated fluctuations altogether absent from a normal temperature curve. These fluctuations appear to be due to the disturbed sleep of the patient during the earlier hours of the night. As the disease progresses there is marked alteration in the character of the curve and its diurnal variations. In place of the gradual ascent there is a sharp rise, followed at the end of the plateau by a still more rapid fall to the normal level. On the injection of a small therapeutic dose of tuberculin a "plateau" curve develops at once, the temperature remaining at or above 99°[4] for ten hours, though the greatest diurnal range is only 1·3° (Fig. 23). Three weeks later, under similar conditions, a similar plateau (Fig. 24) is developed, and on the following day, though the plateau is still present, the diurnal range is 2·3° (Fig. 25). All this was looked upon as indicating an unsatisfactory state of affairs as regards the progress of the disease. Four months later when, though the condition of the patient's lungs appeared to be satisfactory, he was found to be working too hard, the patient commenced to lose weight, his temperature curve became irregular and ran too high, and the exhibition of a therapeutic dose of tuberculin was followed by a definite "plateau" reaction.[5]

Temperature Instability a Feature of Tuberculinisation.

The instability or irregularity appears to be a marked feature of tuberculinisation, whether the result of auto-intoxication or artificially produced by "tuberculin." We have since noted that, in this as in other cases, as the disease progresses the "plateau" gradually becomes more and more characteristic, until finally we have a perfect reproduction of the curve—with its daily variations and its peaks—that results from the injection of tuberculin into a tuberculous subject, human or bovine. In the case under consideration, where from the temperature curve an unfavourable prognosis was given at a very early stage, the course of the disease was carefully observed until the final issue. Here not only was the plateau a more and more distinctive feature as the disease progressed, but finally a complete inverse temperature curve, a grave prognostic indication, was obtained some time before the patient died.

CASE 2 first came under observation in 1914.[6] The patient was at work in September and October, 1915, and temperature curves on which a steadily developing plateau was recorded were obtained at intervals.[7] Following the publication of this case several other curves were obtained, all of them, unfortunately, showing a progressive development of the plateau, with well-marked fluctuations, high peaks, and deep depressions. From these temperature indications an extremely unfavourable prognosis was argued. At that time there was neither hospital nor sanatorium accommodation sufficient for our Cambridge patients, and although the man was advised to cease work he would not or could not follow this advice, and the disease progressing he succumbed to a severe hæmorrhage some few weeks later.

CASE 5.[8]—The further study of another case (G. de R.) affords additional evidence of the prognostic value of the quasi-continuous temperature curve. With physical signs of tubercle in the apex of the right lung, and marked dullness and many crepitations at the left base, the patient was transferred to the colony at Little Abington. Up to November, 1915, living an open-air life, he put on weight, and the disease became quiescent; the sputum, large in amount and swarming with bacilli when the patient was first seen, steadily became less abundant, and finally was almost negligible in quantity. The note over both lungs improved; there was a gain of 3½ st. in weight and the chest measurement increased. When the patient was beginning to improve several continuous temperature records were obtained.[9] The temperature was then somewhat high, especially between 10 A.M. and 9 P.M., rising to 99·5° at 6.15 P.M. and then falling steadily until the early morning, but was also very unstable, a glass of cold milk causing a rapid and definite depression. This patient was under continuous treatment at the colony for a period of two and a half years, some dozen records being taken during that period. He engaged in fairly strenuous work and his general condition remained so good that, at the end of the European war, on discharge from the colony he was able to return to Belgium, where he attempted to resume work. He found, however, that he was able to do a limited amount of work only, was easily fatigued, and soon broke down. He was then admitted to a French sanatorium, where, under treatment, he again improved slightly. He has had several attacks of hæmoptysis, there is now marked loss of weight, and the disease is still progressing. The disease was undoubtedly retarded during his stay in the colony, but was immediately roused to activity on his return to normal life. While a refugee in Cambridgeshire he was kept under strict observation and during the whole time the disease continued to progress, though slowly. He was last heard from on Jan. 5th, 1921, when he was in fair health.

[Since the above was in type the expected announcement of the death of this patient has been received.]

Plateau with Peaks and Depressions.

The accompanying additional charts were taken from this case on Feb. 3rd and 4th, 1917. In the first (Fig. 1) the plateau is well developed, the temperature remaining at or near 100° from 3 o'clock in the afternoon until nearly 8 o'clock in the evening. There is then a gradual fall till 5 A.M., after which comes a steady rise. No very marked irregularities, peaks, or depressions appear in this record, though it is by no means so regular as a normal curve, seeming to be fairly easily affected by external influences. On the following day—at 2 P.M.—a minute dose (1/25,000 mg.) of bacillary emulsion was injected subcutaneously, and although the temperature rises no higher than on the previous day, the character of the curve is altered (Fig. 2). The plateau is more marked, the rise commencing at 2.30 P.M., and is maintained until 11 P.M., when a sudden fall is associated with a severe night sweat. Here almost the lowest point of the curve is reached between 1 and 2 A.M., after which comes a slight rise, but the lowest point (97·6°) is reached at 6 A.M. Between 9 and 10 (owing to displacement of the thermometer before micturition the curve is interrupted between 7 and 8 o'clock) the temperature is again nearly 100°, and continues between 99° and 100° until 11 P.M. In this curve steep depressions and peaks are very prominent features, and although the rapid fall between 7 and 8 A.M. is probably due to slight displacement of the thermometer, the fall from the P.M. temperature and the rapid rise after the A.M. temperature are very characteristic of a somewhat active and progressive tuberculous process, that can be held in check or delayed only by the exercise of the greatest care.

CASE 6 (M. S.) was admitted to Bourn Colony, Nov. 16th, 1916, with a temperature of 103° F., pulse 100, marked breathlessness, and great loss of weight. The patient, an orderly at a military hospital, was one of six men who had slept in bunks in one small room.[10] During his stay at the colony the patient's condition improved considerably, the signs of actively progressing disease in the right upper lobe gradually subsided, and the man was placed upon graduated work. From time to time a slight rise in the evening temperature was determined by the ordinary mercurial thermometer. A quasi-continuous temperature record extending over 48 hours was taken only when there appeared to be some indication—slight rise in temperature or complaint of fatigue after work—that such was necessary. During the whole time this patient was under observation little clinical evidence as to the course of the disease could be obtained, the physical signs giving no indication of any increased activity. After admission the patient gained weight for a time, then his weight became, and remained, stationary for several months. After 12 months' treatment and training at the colony the patient was ordered to do some little light work on the land, partly with the object of ascertaining how far a patient in this condition could perform such work, and partly with a view to testing the efficiency of the system of the After-Care Association, and arrangements were made for the reception of the patient on a farm. Hours of work, which did not exceed six a day, were planned out and a start was made. For a time all went well. Clinically the patient's condition remained much the same, but gradually, as there was some loss of weight, it was concluded that there was extension of the disease and the patient was readmitted to the Papworth Colony, where more exact observations could be made and further temperature records taken.

The first of these temperature curves (Fig. 3), obtained six days after the return of the patient to the colony, at once afforded evidence that the disease was progressing. Early in the day the temperature rose to 99° and continued above that point for 12½ hours—to 10.15 P.M.; then followed a broken, irregular fall to 98° at 6.30. A second temperature curve (Fig. 4), taken 24 days later, was equally discouraging. The plateau, extending from 12.30 P.M. to 11.45 A.M., with a break of two hours, during which the temperature fell to 98·7°, was imperfect, but the "toothed," "peaked," or "wavy" character of the curve was very marked. It was evident that here auto-inoculation was responsible for the "temperature," for when a minute dose of bacillary emulsion was injected no greater reaction was obtained, though the

[3] Figs. 22 to 25, loc. cit., pp. 496-497.
[4] All temperatures are "rectal," and are recorded in degrees Fahrenheit.
[5] Loc. cit., Fig. 26, p. 497.
[6] Loc. cit., p. 497.
[7] Loc. cit., Figs. 27, 28, 29, pp. 497-498.
[8] Loc. cit., p. 499.
[9] Loc. cit., Fig. 34, p. 499.
[10] Subsequently, though at different dates, all the other five were admitted to the colony, each with some evidence of tuberculous disease.

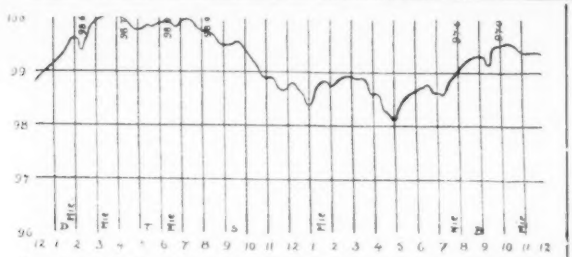


FIG. 1.—G. de R., aged 23. Record taken Feb. 3rd–4th, 1917. This shows a ten hour "plateau," with no well-marked peaks. The diurnal range of temperature is only 2°, but the curve indicates the presence of a somewhat active tuberculous process. This and the following quasi-continuous records are all taken with the thermometer in the rectum. The figures at the upper margin of the diagrams indicate the mouth temperatures. The temperatures are given from noon to noon in degrees Fahrenheit. B = breakfast; D = dinner; T = tea; S = supper; MIC = micturated.

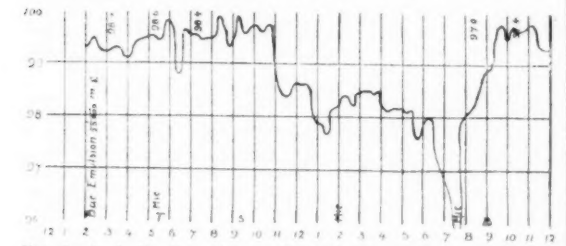


FIG. 2.—G. de R. Record taken Feb. 4th–5th, 1917, after the injection of 1:25,000 mg. bacillary emulsion. There is little alteration in the period over which the plateau extends, but the temperature is less stable, the peaks are more marked, and at the end of the plateau there is a sudden fall, synchronous with the development of a night sweat.

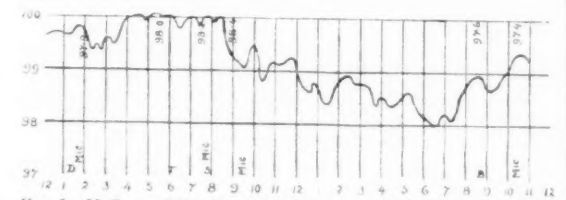


FIG. 3.—M. S., aged 18. Record made Jan. 25th–26th, 1917. Shows a plateau extending over a period of (more than) eight and a half hours. There is also some irregularity of the curve, but there are, as yet, no marked "peaks." The diurnal range is only 2° so long as the patient is confined to bed. The curve is that associated with a progressing tuberculosis and unfavourable prognosis.

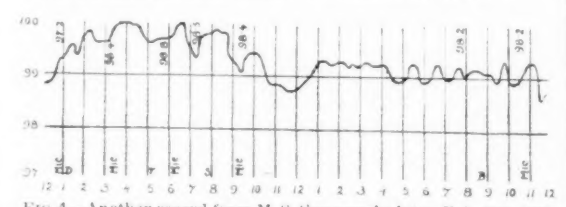


FIG. 4.—Another record from M. S. three weeks later, Feb. 19th–20th, 1917, in which the plateau is (eight and three-quarter hours) marked, peaks are more prominent, and the diurnal variation is only 1·5°, but the general level is very high. There is only slight remission during the night and morning hours.

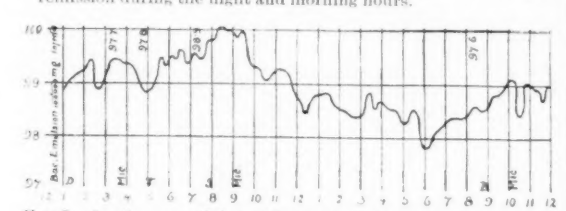


FIG. 5.—Another record from M. S. taken Feb. 20th–21st, 1917, after 24 hours' complete rest and the injection of 1/100,000 mg. bacillary emulsion. The plateau is still marked, though at two periods the temperature falls a couple of points below 99°. The diurnal variation is 2·2°. In all three records the minimal temperature is considerably higher than normal.

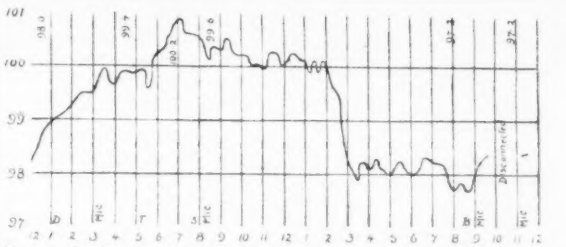


FIG. 6.—Another record from M. S. made on April 11th–12th. Here the disease is progressing rapidly, as evidenced by high temperature, broad plateau, well-marked peaks, and sudden fall where night sweat occurs. Disease very advanced and actively progressing. Diurnal variation 3°.

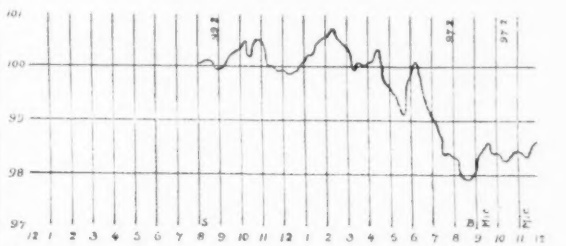


FIG. 7.—Record from M. S. made five days later, April 16th–17th, 1917, with plateau prolonged to later morning hours, well-marked peaks, and depressions and sudden fall, with late night sweat. Diurnal variation, 2·9°. Inverse temperature; patient nearing end.

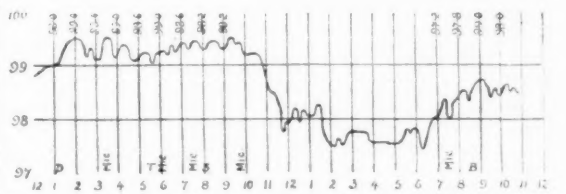


FIG. 8.—W. T., aged 15. Record made June 10th–11th, 1917. Plateau nine and a half hours, with well-marked peaks and rapid night-sweat fall. Diurnal variation 2°, and some instability throughout the day. Prognosis unfavourable.

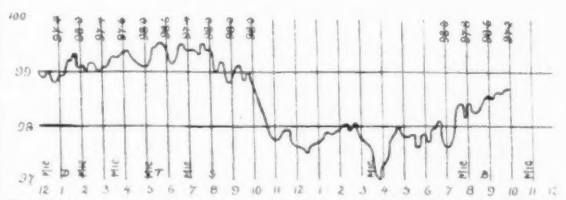


FIG. 9.—A second record from W. T., made June 13th–14th, 1917. Plateau seven hours, with night-sweat fall at 10 P.M. Curve very irregular throughout, easily affected. Diurnal range of variation 2·5°.

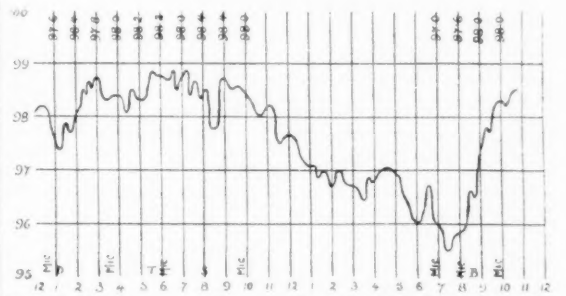


FIG. 10.—Another record from W. T., made June 21st–22nd, 1917. This curve is scarcely characteristic as regards the plateau, but it is so extremely irregular—i.e., is so easily affected by external influences, meals, micturition, &c., and the diurnal range is so great (3·3°), that without the plateau this curve must be looked upon as indicative of a progressing tuberculosis.

curve (Fig. 5) became slightly more irregular. The plateau in this instance extended over a period of 11 hours, after which the temperature fell slightly and irregularly from 99·3° at 11.15 P.M. to 97·8° at 6 A.M.

On April 11th–12th further evidence of the progressive nature of the disease was obtained (Fig. 6) in the plateau—on which well-marked peaks developed—followed by a rapid fall during a night sweat and an irregular line marking long continued low temperature. There is no rise between 3.30 and 9 A.M., probably because the patient is asleep. The plateau period (temperature above 99°) lasts for 13 hours—1 P.M. to 2 A.M. The highest point is reached, 100·9, at 7.15 P.M. The sudden fall from 101·1° to 98·9° between 2 and 3.3 A.M. is very typical of a night sweat fall. The whole curve is curiously toothed and the chart again resembles very closely that of a tuberculin reaction temperature of a bovine suffering from extensive progressive tuberculosis. On April 16th–17th, 1917, an "inverse" temperature (Fig. 7) makes its appearance. The patient's temperature was high, 100° at 8 P.M., when the tracing was commenced. The line followed a regular plateau course, at or above 100°, from 8 P.M. to 7 A.M., at 2.20 A.M. running up to 100·7°. At 6.15 A.M., after a "night sweat," there was a sudden fall to 97·9° between 8 and 9 A.M.; this was followed by a rise to 99·4° at 6 o'clock on the afternoon of the 17th.

Temperature Record More Trustworthy than Signs and Symptoms.

We are convinced from a study of the series of quasi-continuous temperature records here figured that considerably more reliance is to be placed on them than on physical signs and clinical symptoms however accurately noted and carefully interpreted. The instability of the temperature, especially when a plateau is developed must, apparently, be accepted as a reliable indication of increased activity of the disease, whether physical signs can be made out or not. These records, it is true, were made only after some special indication of the necessity for so doing had arisen, but in each instance the special curve appears to result from auto-intoxication or auto-inoculation. This, however, is exactly the factor we wish to determine, and here the records indicate most clearly the successive doses of tuberculin which the patient has, from time to time, administered to himself through the work or exercise prescribed for him. On readmission to the colony some improvement in the general condition of M. S. took place, but from such time onwards the clinical signs began to point to an extension of the disease, the temperature records continuing to substantiate our deductions from the clinical signs. Again and again "tuberculin temperatures" were recorded, highly irregular plateaus made their appearance and, finally, a true inverse temperature curve was obtained. The plateau had taken complete control of the range of temperature and, as in other fatal cases, gave an indication of the approach of the end, many weeks—nay months—before the final issue was determined, April 19th, 1919. The case is interesting from the fact that the period of observation extended throughout the whole course of the disease—some years; and also that quite early in the disease the character of the continuous temperature record enabled us to make not only a diagnosis as to the extent of the disease but to anticipate its probable course, for it has been found that in all records of a number of fatal cases of tuberculosis collected during the past eight years the persistence of a plateau temperature, especially when on this are superposed marked fluctuations, is a sure indication of active disease, whether this can be diagnosed by means of the stethoscope or not.

CASE 7 (W. T.) was admitted to Bourn Colony, May 11th, 1917, as an early "contact case" of pulmonary tuberculosis; not only has his mother since died from pulmonary tuberculosis, but a sister has recently succumbed to the same disease. In this patient the consumption early assumed a very virulent form, for although the activity of the process was retarded by rest and treatment—the patient gained 17½ lb. in 2½ months—the disease again began to progress as soon as the patient was allowed to work anything beyond very short hours. Temperature records were taken during the 2½ months between 11/5/17 and 31/8/17, at the time the patient was putting on weight. Eighteen month later, February, 1919, the patient died.

In Fig. 8 we have the first of a series of curves showing, in the continued and regular level of the "plateau" between 2 P.M. and 10 P.M., the effects of the auto-inoculation of the patient, followed by a steep fall of a degree and a half within two hours, after which, at 6.20 A.M., the lowest point is attained. A similar record was obtained three days later and again ten days later (Fig. 9). Instead of the usual diurnal variations, we have here a prolonged period during which the temperature remains at almost one level, broken only by sharp peaks and depressions such as are so commonly met with when tuberculin is injected into tuberculous cattle. The A.M. temperature usually falls (Fig. 10) and behaves very much as does the normal temperature, but in a record taken June 24th–25th the difference between the A.M. temperature and the P.M. temperature is less than normal (Fig. 11).

CASE N. was admitted to Bourn Colony on April 21st, 1917, with definite signs of extensive tuberculous disease of the lungs and peritoneum. The patient's whole physique was flabby and his general condition very poor. After keeping him under observation for a month it was decided, as accommodation was then limited, to discharge him from the colony, and on May 25th, 1917, he was sent home and placed under domiciliary treatment. He was dead within six months.

Curve of Rapidly Progressing Tuberculosis.

The temperature curves from this case are very characteristic and of great interest. Taken 12 and 13 days after admission, they indicate a rapidly progressing tuberculosis. Though the temperature only once reached 100°, the plateau (above 99°, Fig. 12) extended for 11 hours during the first 24 hours, May 3rd and 4th, and 8 hours on the following day. The temperature then fell to subnormal, 96·2° at 5.30 P.M. on the first day and 96° on the following day at 8.30. Here the plateau, the range of the diurnal variation, 5·8° on May 3rd–4th and 3·6° on May 4th–5th (Fig. 13), combined with the extreme irregularity of the curve left no doubt as to the active and progressive character of the tuberculous process.

CASE S. D. was admitted Dec. 23rd, 1916, in a very advanced stage of pulmonary tuberculosis, both lungs being considerably involved. So ill was the patient that he was confined to bed during the whole of his stay at the Bourn Colony, suffering from severe night sweats, commencing when the night temperatures were at the highest. He remained under observation in the colony for about a month only, and died shortly after discharge—Feb. 25th, 1917.

In the three records here given we have ample evidence of the extreme activity of the disease in its later stages—five or six weeks and then four weeks before the death of the patient. In Fig. 14 it is seen that the temperature rises rapidly, but very irregularly, from 98·4° at noon to 100·9° at 7.15 P.M. It then falls, with a severe "night sweat," to 100° at 9.30, from which point there is a steady rise to 103·7° at 4.30 A.M., giving a diurnal range of 5·3°, followed by a somewhat intermittent fall to 99·7° at 10.40 A.M. This complete inversion of the usual curve is, as already noted, very characteristic of the late stage of a rapidly progressing pulmonary tuberculosis. The second record (Fig. 15), made 11 days later, is especially interesting in that not only is there a high temperature, an irregular curve, a wide range, and a very rapid fall after a night sweat at 3 A.M., but a very high plateau (over 102°) extending between the hours 2 P.M. and 5 A.M., apparently the result of severe auto-inoculation. The fall from the highest point of the plateau at 3 A.M. is both rapid and irregular. Here we have a semi-inverse temperature extending from 101·3° at 12 noon to 103·6° at 3 A.M. and falling with breaks to 99·3° at 11 A.M. On the following day a curve (Fig. 16) of a somewhat different type, but still very characteristic, is obtained. Commencing at 98·2° at 1 P.M. there is a continuous and regular rise to 101·5° at 6 P.M.; after this the rise becomes irregular, with marked dentations, until at 12.30 A.M. it reaches 103·6°. At 1.30 A.M. a night sweat commences and the temperature begins to fall, though slowly, reaching 103° at 2–4 A.M., 102·2° at 5 A.M., 102° at 7 A.M., 100·3° at 9.30 A.M., and 100° at 12 noon. In 12½ hours there is a rise of 5·6°, followed by a fall of 3·8° in 10½ hours, the temperature remaining at or over 100·3° for a period of 21½ hours. This curve corresponds very closely to the post-tuberculin curve obtained from a calf in an advanced stage of tuberculosis.

CASE L. P. was admitted to Bourn Colony June 26th, 1916, as a case to be kept under observation. Two months previously he had suffered from a severe attack of influenza, but when admitted was quite convalescent. Owing, however, to the length of time that the influenza symptoms had persisted it was feared by his medical attendant that the patient might have developed pulmonary tuberculosis. During his stay at the colony he had no cough and no rise of temperature, though frequent records were taken. There was a gain of 9½ lb. weight, the patient reaching his normal weight in a very short time. He was able to do a full day's work without the slightest fatigue, and was soon discharged fit to continue his trade of cycle repairing. Since leaving the colony he has not had a day's illness, and at the present date (5/1/21) he is well and strong and doing a full day's work.

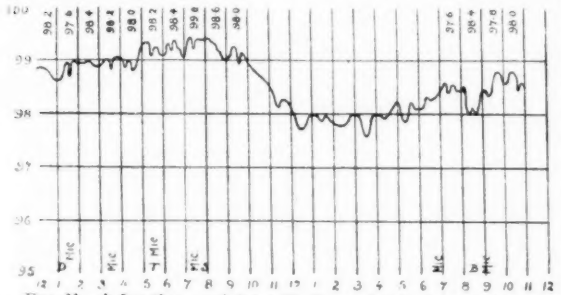


FIG. 11.—A fourth record from W. T., made June 24th–25th, 1917. Nine hours' plateau, with many peaks and depressions followed by a night-sweat fall. Diurnal range 1·8°, but high mean.

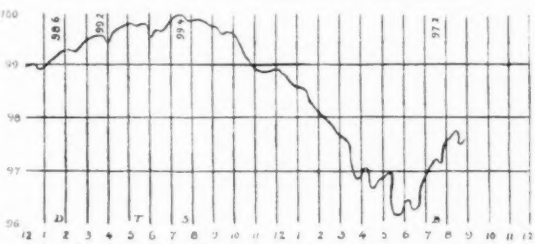


FIG. 12.—N., aged 20. Record made May 3rd–4th, 1917. Plateau eleven hours, but with no very marked peaks or depressions. The fall from 10 P.M. is very steady and regular until 3.30 A.M., when period of profound sleep is past. Diurnal range 3·8°. Prognosis very unfavourable.

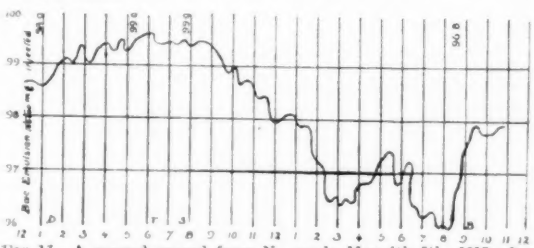


FIG. 13.—A second record from N., made May 4th–5th, 1917, after the injection 1/100,000 mg. bacillary emulsion. Seven and three-quarter hour plateau, irregular curve, early morning sweating, with rapid fall of temperature between 1.30 and 2.30 A.M. Diurnal range 3·6°. Here the natural tuberculinisation is so great that the addition of the comparatively small amount of bacillary emulsion affects the curve but slightly.

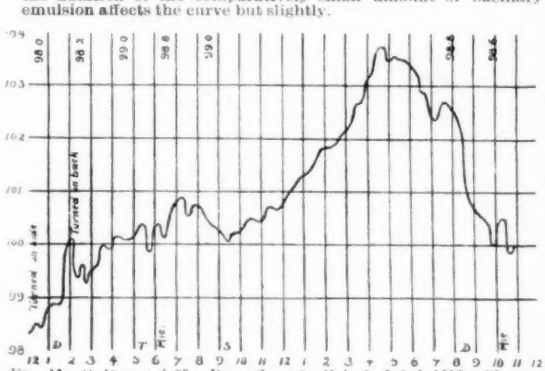


FIG. 14.—S. D., aged 25. Record made Feb. 2nd–3rd, 1917. Characteristic "inverse temperature." Prognosis very bad.

A Normal Temperature Record.

In the record (Fig. 17), taken from this patient at the Pathological Laboratories on June 20th, 1916, before he was admitted to Bourn, we have a characteristically normal temperature curve. There is no plateau and little irregularity of the curve, and although the diurnal range is nearly 2° it is obvious that no auto-inoculation effects are present. To further test the matter a diagnostic dose of bacillary emulsion was injected at 12 noon on June 21st. This gave rise to no

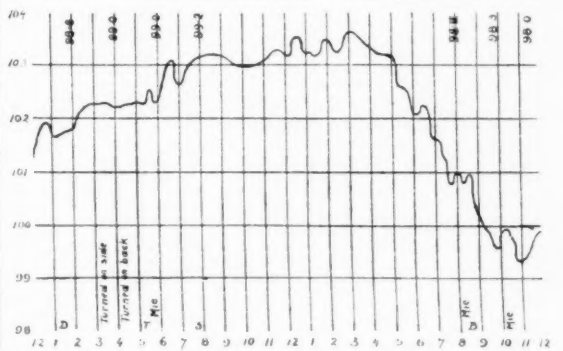


FIG. 15.—A second record from S. D. 11 days later, Feb. 13th–14th, 1917. Even though temperature runs between 99·3° to 103·6° during the 24 hours, the plateau, with peaks and depressions, still persists. The movement of the plateau to the right is here very characteristic of the "inverse" or "half inverse" temperature.

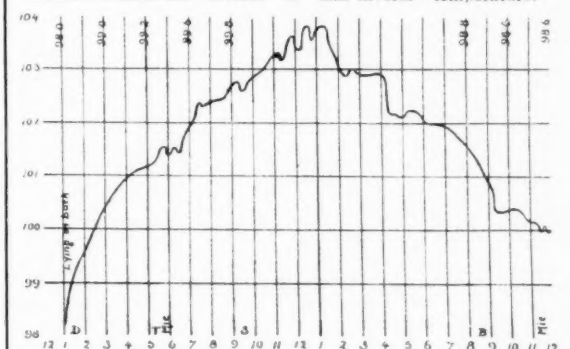


FIG. 16.—Another record from S. D. resembling very closely the post-tuberculin curve taken from a calf in a very advanced stage of tuberculosis. Diurnal range, peaks, and depressions well marked. Diurnal range 5·6°.

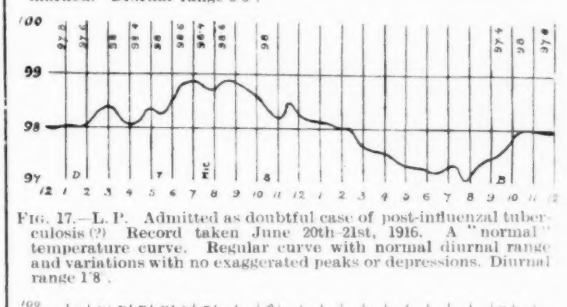


FIG. 17.—L. P. Admitted as doubtful case of post-influenzal tuberculosis (?) Record taken June 20th–21st, 1916. A "normal" temperature curve. Regular curve with normal diurnal range and variations with no exaggerated peaks or depressions. Diurnal range 1·8°.

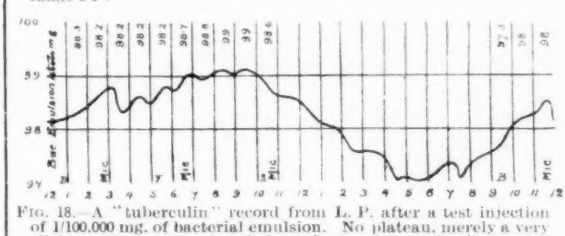


FIG. 18.—A "tuberculin" record from L. P. after a test injection of 1/100,000 mg. of bacterial emulsion. No plateau, merely a very slight and temporary rise of about three points. Still a "normal" curve in all respects. Diurnal range 2·1°. Diagnosis "non-tuberculous," afterwards confirmed.

plateau temperature (Fig. 18): the fall from the highest point at 9.30 to the lowest at 5.30 A.M. is well graded, the rise of the A.M. temperature is equally gradual and steady, and there is little or no exaggeration of the "teeth" of the curve, which, even after the injection, shows nothing but an immediate slight rise of 0·3°. The whole curve undoubtedly justifies a negative diagnosis—absence of any tuberculous process.

CASE K. S.—This patient, a scientific instrument maker, the brother of M. S. (Case 6), was examined in December, 1916, as a "contact" of his brother, for though he had not been working with him at the Military Hospital, he had shared a room with him at their own home. The general appearance of the patient was far from robust. He was thin and not well developed, his frame being considerably slighter though more wiry than that of his brother; indeed, he looked the more delicate of the two. He protested, however, that he was "quite well." In the chest there were no physical signs, and no definite evidence of pulmonary mischief. It was thought, however, that here was a suitable case for observation, especially as there was a strong probability that infection might have taken place. This, coupled with the delicate frame of the patient, made him a suitable subject for a control observation, and he was sent to the colony, where for 5½ months he was kept under close inspection in surroundings and under conditions similar to those in which his brother was living. Quasi-continuous temperature records were made at intervals. During the above period he gained 16¼ lb. in weight, and at the end of it he returned to his work with the Cambridge Scientific Instrument Company, coming to the dispensary for examination from time to time. No signs of tuberculous disease have ever been found, and at the present date the man enjoys good health and is doing a full day's work.

On Jan. 23rd–24th, 1917, the temperature of the patient running about 99° from 12 noon until 7.15 P.M., a small dose (1/100,000 mg.) of bacillary emulsion was injected just before 8 P.M. This was followed (Fig. 19) by a slight rise to 99·7° at 8 P.M., and then by a steady fall to 99° at 11.50 P.M., and by a further fall, following a normal line until 2.45 A.M., when the lowest point, 97·3°, was reached. Then began a rise, at first slow until 7 A.M., and then more rapid until 11 A.M., when 99·7° was reached. On Feb. 7th–8th 1917, in the same case (Fig. 20), the temperature, 98·2° at 12 noon, rose at 2.30 P.M. to 99°, reaching 99·9° at 6 P.M. Then followed a fall to the lowest point reached, 96·4°, at 12.15 A.M., followed by a slight rise to 97·3° at 1 A.M., a fall to 96·8° at 4 A.M., and an irregular rise to 99·7° at 11 A.M. It will be noted that here there is no continued "plateau," and that although the curve is irregular it is by no means characteristically "tuberculous" in any other respect. In a second group of curves any well-defined plateau is still absent, for although the temperature on Feb. 24th–25th (Fig. 21) runs above 99° for nearly ten hours between 12 noon and 12 midnight, it twice falls below that level—at 5 o'clock in the afternoon and between 9.30 P.M. and 10.45 P.M. At no time does it rise beyond 99·7°, and during the greater part of the period it is below 99·3°. Between 12.30 A.M. and 1.15 A.M. there is a fall of 0·7°, the temperature then going down steadily until 7 A.M., when it reaches 97·9°, and then rises equally steadily to 99·6° at noon. With the object of confirming or correcting these observations another temperature record was taken on April 2nd–3rd, 1917. Here, again (Fig. 22), no plateau is seen; the rectal temperature does not continue above 99° for more than six hours; 98·8° at 12 noon, 99° at 2 P.M., it reaches the highest point, 99·6°, at 6.30 P.M. By 8 P.M. it had fallen to 99°, at 10 P.M. to 98·3°, and then, with slight intermissions, to 96·8° at 5.45 A.M. and 96·6° at 8 A.M., after which there is a steady rise to 98·6° at noon. In the afternoon, between 3 and 4 o'clock, the injection of 1 mg. of old tuberculin was followed by no tuberculin reaction (Fig. 23). There was a slight—practically normal—rise of temperature to 99·5°, followed by a steady, though irregular, fall to 97·6° at 11.20 P.M. and a further fall to 96·9° at A.M., after which the temperature began to rise, and at noon had reached 98·7°. During the whole period none of the characters of a true tuberculin temperature were noted. The records obtained from this case, K. S., a non-tuberculous patient, served as admirable controls for comparison with those of his brother, M. S., a markedly tuberculous patient. Both had been and were observed under exactly similar conditions. All the records were taken at similar intervals, and external factors, diet, temperature (summer and winter) were identical.

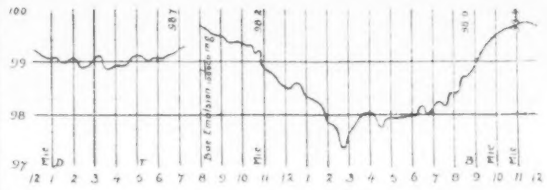


FIG. 19.—K. S., aged 20. Record made Jan. 23rd–24th, 1917. A contact case, brother of M. S. (Figs. 5–7). Tested with 1/100,000 mg. bacillary emulsion. Diagnosis doubtful.

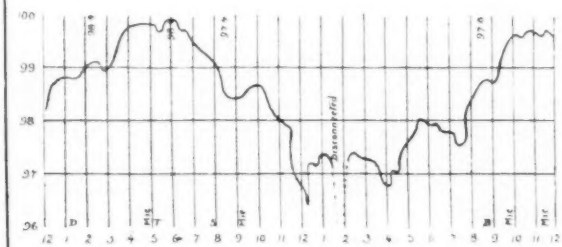


FIG. 20.—Record from same case (K. S.), Feb. 7th–8th, 1917. Plateau only four and a half hours, and curve very steady and regular. Diagnosis still "doubtful, but, if tuberculous, prognosis favourable."

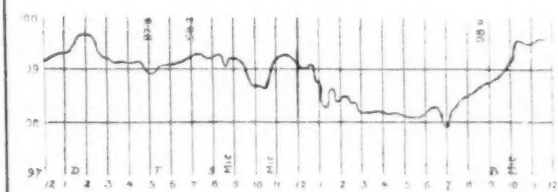


FIG. 21.—Record from same case (K. S.), Feb. 24th–25th, 1917. Morning temperature rather high. Diurnal range 1·7°. Plateau (?) but temperature is steady and not much affected by external influences. Diagnosis still "doubtful, but, if tuberculous, prognosis good."

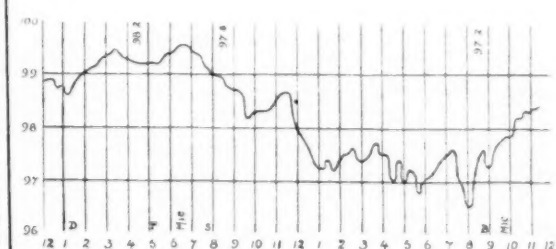


FIG. 22.—Record from same case (K. S.) five weeks later, April 2nd–3rd, 1917. Plateau contracted to seven hours. No marked peaks or depressions. Irregularities in the curve occur only when patient is restless or awake. No night sweat with early morning fall. Diurnal range 3°.

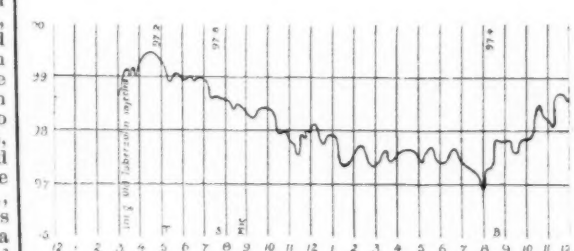


FIG. 23.—Test record from same case (K. S.), April 2nd–4th, 1917, after injection of a test dose of bacillary emulsion 1/100,000 mg. No plateau, curve somewhat more irregular than usual, but the curve now follows quite normal lines. Diurnal range 2·6°. Diagnosis: No tuberculosis.

The Advent of Thermometry.

Fever or pyrexia has long been associated with various forms of pulmonary consumption and tuberculosis, but with the advent of thermometry it assumed a special importance. Aitken,[11] following Wunderlich,[12] drew attention to the fact that in tuberculosis, especially in its acute form, the persistence of a uniformly high temperature, quite apart from other signs, is sufficient indication that there has been no arrest in the progress of the disease. Aitken, however, realised the difficulty of making a definite diagnosis or prognosis on a single observation. In a series of unsigned articles dealing with Wunderlich's thermometrical work[13] the importance of a rise of temperature in tuberculous conditions—e.g., "while tubercle is being deposited in any of the organs of the body the temperature of the patient is preternaturally raised"—is strongly insisted upon, this rise being "a measure of the rapidity with which tubercle is being deposited in any of the organs of the body." Again, in 1860 Ringer and Rickards[14] demonstrated that the temperature of the body is always preternaturally elevated, while tubercle is being deposited in any of its organs. They hold, moreover, that if there be a chronic elevation of the temperature, and this be not due to rheumatism, ague, suppuration, or chronic induration of the lung, it must be looked upon as being due to a tuberculous deposit in the body. With the advent of the tubercle bacillus temperature records became of still greater importance, especially as bearing on the progress of the disease.

In 1893 J. Kingston Fowler[15] made a valuable contribution to our knowledge of this subject, drawing attention to the indications as to the progress and activity of the tuberculous process offered by the degree and type of pyrexia. He pointed out that the "tuberculosis" daily temperature curve is usually characterised by pyrexia commencing in the afternoon, gradually increasing to a maximum at 8 or 10 P.M., and then falling continuously until the early morning, when the thermometer may register one, two, or even three degrees below normal. He admits that this type of pyrexia is not confined to tuberculous disease, although it certainly occurs in connexion with it with special frequency, *its presence often first indicating the real nature of a doubtful case*. He is of opinion that no satisfactory explanation of this pyrexia has ever been given, although "when occurring in a case of pulmonary tuberculosis with a rapid disintegration of the lung, it is generally ascribed to septic absorption," though a similar rise in cases of tuberculous pleurisy and tuberculous peritonitis may be met with. He looks upon this fever as the "expression" of an attempt on the part of the organism to deal with and destroy the product of the *Bacillus tuberculosis*, or of "a direct effect on the heat-regulating centres of the absorption of the toxic material ..... a sudden increase in the area of lung affected, or an accession of activity of the morbid process without definite signs of extension, is almost invariably marked by the occurrence or increase of pyrexia."[16]

A moderate rise with a distinct morning fall "indicates a progress of infiltration, with foci of softening, or, again, when the regularity of the evening rise and the morning fall is disturbed in any way; as when there is a sudden increase in the evening fever associated with a less marked morning remission, or when, on successive days, the lowest point touched gradually recedes from the base-line and regularity is replaced by marked variability, we are rarely wrong in concluding that an extension of the morbid process has occurred, and conversely it is scarcely necessary to state that between such periods of pyrexia there may be long intervals marked by absence of fever during which there is either partial or complete arrest of the morbid process."[17]

[11] Science and Practice of Medicine, second edition, 1863; third edition, 1864, vol. i., pp. 32-65.
[12] Das Verhalten der Eigenwärme in Krankheiten, Leipzig, 1868, Trans. New Syd. Soc., 1871.
[13] Medical Times and Gazette, 1866, vol. i., pp. 177, 201, 228, 311, 394, 418, 666.
[14] Ibid., 1866, vol. i., p. 250.
[15] The Varieties of Pulmonary Tuberculosis, Practitioner, 1893, vol. li., p. 256, et. seq.
[16] Loc. cit., p. 260.
[17] Loc. cit., p. 262.

"Normal" and "Inverse" Types of Pyrexia.

He notes, too, that in fibroid tuberculosis, a chronic condition in which tuberculous foci, even when present, are isolated, the disease is sometimes "characterised by hypopyrexia which may persist almost throughout the case even during periods of extension of the disease within the lungs,"[18] the temperature in certain of these cases never rising above 98·4° F. In an equally exhaustive paper, Dr. S. Vere Pearson[19] records a number of observations of great interest and value. He divides the temperature met with in his cases of tuberculosis into four groups, for each of which he constructs a curve; one for a type of temperature which he speaks of as "normal," a second as "half-normal," a third as "half-inverse," and a fourth as "inverse." He maintains that if a sufficiently large number of cases of pulmonary tuberculosis be studied, examples will be found coinciding with, or approximating to, one or other of the following types: (i.) the lowest temperature is met with at 12 noon instead of first thing in the morning; (ii.) the highest temperature is reached at 9.45 P.M. instead of 6.45 P.M.; and (iii.) an entirely erratic type of temperature, sometimes inverse, sometimes highest at noon and sometimes lowest at noon. The third of these groups he looks upon as indicating a bad prognosis, the late high temperature (ii.) as being of less grave significance and (i.) of least grave significance.

Dr. Pearson was evidently confronted with the same difficulty that early presented itself to us during the course of our work—the difficulty of determining the early morning temperature of his patient, a difficulty which led us to search for the *normal diurnal variation*. We then found that temperature is, to a certain extent, even in the normal individual, a matter of custom and habit, but that, speaking generally, the lowest temperature is usually recorded when the bodily and functional activities of the individual are at their lowest ebb, and if, for any reason whatever, these have been subject to excessive stimulation or have been compelled to pass through an abnormal cycle there may be, during the period of exhaustion, a lower or the lowest temperature at a period other than that at which it is usually met with under normal conditions. It has been generally accepted that the early morning temperature of a patient with quiescent or healed tuberculosis is lower than that of a healthy person, and that the rectal temperature after recovery from a relapse may be several points lower than the temperature met with, as a rule, after recovery from the primary trouble. Sometimes it is the morning temperature alone that is lower; sometimes *all the rest-temperatures are lower*—indeed, Vere Pearson lays stress on the small excursion that occurs after a return to health, but we are inclined to the opinion that no such restriction of the excursion may take place and that the mistake involved has arisen because after rest and treatment the "minimum" temperature *is usually recorded after the morning rise has commenced*. No definite and reliable temperature curve can be built up on observations taken at fixed times, even when taken every four hours, and certainly not when taken only four times a day.

Healthy Diurnal Variation and Range.

When we first took up our investigations on the temperature of the animal body we long remained in considerable doubt as to what should be looked upon as a normal temperature and what its normal diurnal variations and range. Most of the earlier observers, finding themselves confronted with the same difficulty, made efforts, in many instances very successful efforts, to obtain information on these points, and some have recognised the relative movements of the several

[18] Loc. cit., p. 268.
[19] The Temperature as a Guide to the Treatment and Prognosis of Phthisis, THE LANCET, 1909, ii., 852. At the time the part of our first paper dealing with clinical cases was written (THE LANCET, 1916, i., 496, et seq.) we had, owing to war conditions, no access to much of the literature of the subject. We have since read Dr. Pearson's article in which he gives his observations on the fever of phthisis and describes most fully an erratic type of temperature which corresponds very closely to the fluctuating temperatures of our records.

temperature points, noting that under certain conditions the highest point might be attained an hour or two earlier or an hour or two later than usual in the evening and, similarly, the lowest point an hour or two earlier or later in the morning. In spite of this we find that the times at which temperatures are taken are usually "fixed." Consequently the highest and lowest points are frequently missed, and deviations from the normal indicative of altered conditions, remain unobserved.

In his paper Vere Pearson sets up a somewhat arbitrary standard which, however, in the absence of continuous records, probably affords a good "working rule"; he says that fever is present when the morning temperature reading is above 98°, the evening record above 99·4°, and that a call for care and rest is then indicated. "The heightening evening temperature," he says, "may be the indication of the slight remains of activity, but a raised morning temperature means more than this."

To the series of normal temperature curves already published[20] we now add others; two (Figs. 16 and 17), obtained from a patient who, after an attack of influenza, was kept under observation as a suspected case of pulmonary tuberculosis; and five others from a "contact" who never developed tuberculosis (Figs. 18–22). In the former case the highest temperature attained is between 7 and 9 P.M., 98·8° on the one day, and between 7 and 10 P.M., 99° and 99·1° at 7.45 A.M. on the first day, and 97·1° at 4.30 A.M. the next day. The injection of a dose of bacillary emulsion causes a rise of only 0·2° at the highest point, though there appears to be a slightly higher temperature for a period of eight hours. There is no sudden rise at any point, the gradient of the fall is very gentle, no "plateau" is developed, and the irregularities characteristic of a tuberculin curve are absent.

Time of Highest and Lowest Daily Reading.

In the healthy individual any temperature of 98° or below has been accepted as a normal morning reading. We should place the figure for a rectal temperature nearer 97°, but it is evident, from a study of the various records of healthy individuals of different ages, that even in the same person the minimum reading varies on different days at the same hours in the morning even under similar conditions, except as regards the period at which the individual is enjoying his most profound sleep, the time at which all the bodily functions and activities are most in abeyance. It must, of course, be borne in mind that as a rule whilst the quasi-continuous records are being taken the patient is confined to bed, and that he is only kept in bed because there is need for rest during the course of treatment. The measure of rest, however, complete or incomplete, can be accurately determined by a study of the curves obtained.

It is obvious, from what has been stated above, that the difficulty of determining the exact time at which the temperature should be taken is completely eliminated by the adoption of the continuous or quasi-continuous method. Vere Pearson draws attention to the fact that the lowest temperature for the 24 hours, not only in the healthy individual, but in most cases of tuberculosis in which the disease is not active, occurs between the hours of 1 and 4 A.M. Our experience enables us to agree with this, except that this lowest point may be reached as much as three or four hours later. Again, although we are in *general* agreement with his statement that the highest daily reading is usually between 3 P.M. and 8 P.M., our experience is that the highest daily reading is sometimes earlier than the above and sometimes later.

Deductions from Morning and Evening Rectal Measurements.

We have made careful study of the information as to the temperature changes recorded by later observers, amongst others, F. Burton-Fanning and S. G. Champion,[21] K. Turban,[22] F. R. Walters,[23] Arthur Latham,[24] and A. C. Inman,[25] as occurring in different types of pulmonary tuberculosis. There appears to be a consensus of opinion that where rectal temperatures are taken—and all, with the exception of Burton-Fanning, agree in insisting that the rectal temperature, and that only, is reliable—(i.) any slight daily repeated rise above the evening normal must be accepted as indicating the presence of active tuberculous disease; (ii.) a morning rise, even comparatively slight, whether accompanied by an evening rise or not, may be a still graver sign. Most observers draw attention to the fact that this morning rise is frequently the indication of an inverse temperature such as may be associated with cases of acute miliary tuberculosis or very advanced cases of rapidly caseating catarrhal pneumonia—the terminal phase of so many types of pulmonary tuberculosis.

Vere Pearson maintains that here there may be but slight difference between morning and evening temperatures and, further, that were single morning and evening temperature only taken at the usual times they would almost certainly be accepted as normal. There appears, however, to be general agreement that patients in whom the temperatures show little variation, even at a low level, during the 24 hours, often possess little reactive power and "have to be dealt with very cautiously." (iii.) The continuous temperature in which though morning and evening temperature are both somewhat higher than normal, that of the evening not being raised so much as is that of the morning, indicates a commencing inversion. A marked evening rise, especially when accompanied by irregularities—remittent and intermittent; (iv.) is characteristic of acute caseating tuberculosis; (v.) a normal or subnormal temperature is met with in cases of chronic fibroid tuberculosis and, especially in somewhat more active disease, following a raised evening temperature.

It has been pointed out, repeatedly, that in acute miliary tuberculosis there is an increase of pyrexia usually occurring after midday and marked by great irregularities "the maximum being observed between 8 and 10 P.M., followed by a remission accompanied by profuse sweats in the early morning." Again, the "inverse type" in which the evening temperature is lower than the morning temperature is said to be characteristic of this form of tuberculosis. All are at one, further, in holding that wherever the type of temperature curve has become changed in any way—i.e., has departed from the normal, ever so slightly—the patient must be advised to "make haste slowly." We agree[26] with Vere Pearson, that by a careful study of rectal temperature the onset of relapses and complications are recognised more readily and certainly than by any other method:—

> "It is of particular importance in respect of the early recognition of a relapse to remember that not infrequently the physical signs of the extension of the disease in the chest are only to be found after the symptoms of the set-back have subsided. Hence, anything which helps towards an early recognition of tendency to relapse is of the utmost importance in treatment, because with skill the inclination towards renewed activity or extension of the disease can be checked, and thereby often, I feel sure, a definite set-back warded off."[27]

Temperature Observation as an Aid to Early Diagnosis.

We go further, however, for, from our own experience, these temperature observations are of even greater importance in the *early diagnosis* of tuberculous disease, and we hold that the commencement of the process assumes to the infected organism the same relation that a relapse bears to the patient with the developed disease. In the one case we are on the outlook because we have already obtained evidence of the presence of the disease, in the other we may frequently obtain the evidence do we but search for it.

[20] THE LANCET, 1916, vol. i., Figs. 5 and 6, p. 285, and Figs. 16, 17, 18, and 19, p. 450.

[21] The Comparative Value of the Mouth, the Rectum, the Urine, the Axilla, and the Groin for the Observation of the Temperature, THE LANCET, 1903, i., 856.

[22] Beiträge zur Kenntniss der Lungen-Tuberkulose, Wiesbaden, 1899, and Die praktische Bedeutung der Opsonischen Index bei Tuberkulose, Münch. med. Wochenschr., 1908, Bd. lv., p. 1993.

[23] Tuberculin and the Sanatorium, Brit. Jnl. Tuberculosis, 1912, vol. vi., p. 107; Practitioner, 1913, vol. xc., p. 69.

[24] The Uses of Tuberculin in Pulmonary Tuberculosis, Proc. Royal Soc. Med., 1912, vol. v., Pt. 3, Therap. Sect., p. 55.

[25] The Specific Diagnosis of Pulmonary Tuberculosis, THE LANCET, 1910, ii., 1747.

[26] Loc. cit., Figs. 15, 17, 18, and 19, p. 450.

[27] Pearson: THE LANCET, 1909, ii., 853.

It will be readily understood, then, from what we have stated, that it is not always an easy matter to determine by single routine morning and evening temperature readings whether a febrile condition is present or not. Further, it is now recognised that in night workers who rest during the day a "normal inverse" temperature obtains as soon as a habit is formed. We are of opinion, moreover, that the inverse temperature met with in acute miliary tuberculosis of the lung and similarly present in the advanced and rapidly progressing catarrhal pneumonic type of pulmonary tuberculosis is due, in part at any rate, to the disturbance of the cycle of the functional activities that accompanies the rapid extension of the tuberculous process. In both types of tuberculosis the presence of the inverse temperature affords evidence that the disease is assuming an acute progressive form and that there is little prospect of any permanent arrest of the disease.

Marcus Paterson has long held that the patient with large cavities—cavities bounded by walls of fibrous tissue—in the lung must be looked upon as an individual resistant to the disease. In such a patient the disease has progressed slowly; there may have been several or many exacerbations, but these have given rise to *comparatively slight* constitutional or physical manifestations but to *marked* proliferation of the connective-tissue cells. So consistent have been our observations on the cases treated at the Bourn and Papworth colonies that, taking the cases collectively, fibroid, miliary, and pneumonic caseous cases, the slowly developing and resistant or fibroid cases, and the more rapidly progressive cases, we think it may now be accepted that the pyrexia varies almost directly with the rapidity and extent of the breaking down of the tissues through the activities of the tubercle bacillus, the breaking down of the bacilli, and the absorption of the products of these lytic processes by the surrounding tissues and inversely as the "resistance" of the tissues of the patient. It is obvious that if this be correct fibroid tuberculosis, under ordinary conditions, will be characterised by comparatively little rise of temperature, though as the result of a dose of tuberculin injected artificially it may be possible to set up a well-marked reaction. The same holds good of those lesions in which the caseous masses, surrounded by a fibrous capsule, are cut off or isolated from the surrounding tissues. Only when there is some disturbance of the fibrous tissue, some acute inflammatory process, some lysis of the bacilli present, some violent exercise inducing absorption of the caseous tuberculous material and the products of bacteriolytic action and auto-inoculation of the patient is any marked rise likely to occur. Moreover, as soon as the tuberculous focus is emptied of its degenerated content pyrexia becomes less marked—there is less auto-inoculation reaction. In the somewhat rapidly progressing caseous tuberculosis where the tuberculous process extends beyond a quiescent or fibrous lesion and where, in addition to the interstitial tuberculous process, there is a rapidly extending catarrhal pneumonic tuberculosis, the process of auto-inoculation goes on much more rapidly and completely, giving rise to severe constitutional changes, amongst which continued pyrexia during the working hours of the day is a marked feature, varying according to the extent of the lesion (the amount of "tuberculin" available), the readiness with which the tuberculin may escape from the caseating lesion, and the activity and extent of the factors—work, movement, &c.—concerned in the diffusion of the "tuberculin." That tuberculin alone is capable of exciting a rise of temperature in a tuberculous patient appears to be beyond question. The heat-regulating centres then become unstable, overworked, or irritable, whilst when the products of septic or other bacteria act as adjuvant factors—and this occurs specially in the later stages of the disease—the temperature variations undoubtedly become exaggerated, and, very frequently, considerably altered in general character. For the present, however, we confine our observations to what may be termed a "pure tuberculin reaction."

Quasi-continuous temperature records of the cases now under consideration have been made over a period of eight years, but most of them have been made on patients treated at Papworth. Some of the patients studied have succumbed to tuberculosis, others are still at work, but in all the conditions have been carefully noted. Some of the contacts of these cases serve as controls and are still under observation, and the earlier deductions made from a study of the various temperature charts are thus capable of verification by subsequent experience.

The "Plateau" Curve is Pathognomonic of Tubercle.

The most important of our observations is that as in tuberculosis in cattle, so in pulmonary tuberculosis of the human subject when the disease is progressive, a continuous temperature chart shows a characteristic curve—the "plateau" already described[28]—a curve which can always be reproduced in the tuberculous subject by over-exercise or by the injection of a suitable dose of tuberculin. Further, on reference to the notes of the cases here recorded it will be found that in all the doubtful cases in which the patient ultimately did badly this "plateau" temperature curve developed even during the early stages of the disease. This plateau, as we have seen, is characterised by a more or less rapid rise of temperature, 99° or more, a temperature which remains above 99° for a period of from 8 to 12 hours, the plateau commencing usually, though not invariably, about 2 P.M., and extending until 10, 11, 12 o'clock at night or later, when there is usually a sudden fall, often with, but sometimes without, a "night sweat."

The indication so afforded is so reliable that it may be accepted as almost pathognomonic even when other aids to diagnoses are wanting and a series of curves taken from a suspect embody information which will almost certainly eliminate doubt as to the diagnosis, whilst in a diagnosed case the "plateau" curve indicates the need of further treatment, in that it supplies definite evidence of the activity of the morbid process.

In all the cases in which the plateau is well developed the up and down lines are well accentuated, very slight physical movement or mental disturbance causing sudden rises, rest and ingested cold fluids determining equally rapid falls, whilst a restless night with disturbed sleep invariably gives rise to an irregular curve. In tuberculous patients, as in the healthy individual, the temperature is lowest at a time when sleep is most profound, and when the various functions appear to be least active. Another important feature is that as the disease progresses the plateau becomes more and more extended, and as this occurs there is a tendency for the summit to move more and more to the right, that is, to be prolonged into the morning hours; consequently in very advanced stages of the disease this may become so marked a feature that we have practically an "inverse" temperature.

In all the advanced cases and in some of those progressing but not yet advanced, "peaks" appear at intervals along the plateau, and for short periods the temperature may run to 102°, 103°, or even 104°—1°, 2°, or 3° above the general level of the plateau.

The evidence of auto-tuberculinisation is invariably most marked at the times at which the various functions of the body are most active, the night sweats ushering in the rapid fall of temperature at the end of the plateau, in certain cases, to subnormal. We look upon a sudden fall as associated not only with the night sweat but with the exhaustion of the patient induced by the tuberculin reaction, a process quite distinct from the disappearance of the pyrexia on the formation of a well-defined cavity, the result of softening and the evacuation of the caseous material—the tuberculinising centre. As the disease advances the variation between evening and morning temperature up to 103° and down to 96° or lower appears to be nothing but an exaggeration of the tuberculin reactions from auto-inoculation, as we find that in cases in which the tuberculin plateau is well developed the fall of temperature is sudden during the night and the point reached is extremely low; consequently the diurnal variations

[28] Loc. cit., pp. 495, et seq.

as measured by the ordinary clinical thermometer must be great. It is only towards the end that the increase of the pyrexia becomes continuous, the highest point sometimes being separated from the lowest by a single degree only.

Conclusion.

We maintain that the quasi-continuous temperature record of a reaction is a valuable diagnostic indication as to (1) the tuberculous nature of the disease; (2) the activity of the process; and (3) the prognosis. As to the type of the disease, however, "acute miliary," "caseous pneumonic," "chronic fibroid," &c., though, as seen above, the temperature may give some indication, the physician will find that physical signs afford considerably more specific information.

The temperature indications as to the resistance, or lack of resistance of the tissues of the patient are of extreme interest, especially in regard to prognosis. Instability of the temperature affords evidence of (*a*) a high toxic absorption; (*b*) ready reaction of the tissues to the toxic stimulation; and (*c*) marked interference with the rest function of the patient. A restless night is reflected in the temperature curve, and it appears that the inverse temperature is, to a large extent, the result of a continued auto-inoculation, during which a minimum stimulus produces a maximum reaction both as to amount and duration.

In the night sweats we have evidence of some interference with the autonomic nerve centres, leading to dilatation of the surface blood-vessels, great radiation of heat from the cutaneous surface, and a rapid lowering of the general temperature.

At the outset of our observations we thought it well to compare the rectal temperatures with a series of temperatures taken in the mouth with the ordinary mercury clinical thermometer, but, as will be seen from the figures marked on the charts, these temperatures bear little relation to the rectal temperatures. In the advanced stages of the disease some information could certainly be obtained from these readings, but we are now satisfied that they give little indication of the extent or progress of the disease or, in its earlier stages, of its presence.

To the Medical Research Council we are indebted for a grant to enable us to continue this investigation, and we wish here to tender our hearty thanks for the assistance so afforded.

HELIOTHERAPY IN THE HIGH ALPS.

BY A. ROLLIER, M.D.,

MEDICAL DIRECTOR OF THE HELIOTHERAPEUTIC INSTITUTIONS AT LEYSIN, SWITZERLAND.

THE therapeutic action of the sun has for a long time been attributed to the invisible rays of the spectrum, especially to the ultra-violet, of which the bactericidal action has been demonstrated by a number of eminent bacteriologists (Arloing, Luclos, Tyndall, and others). Experiment has also shown that it is to the ultra-violet rays again that the production of cutaneous pigment must be attributed; this is considered a defensive reaction, preventing chemically active rays from penetrating deeply into the tissues. The ultra-violet rays are absorbed by the melanin of the epidermis, by the lipochrome of the adipose tissue, and by that of the blood plasma. Absorption by lipochrome can be proved by the spectroscope. The amount of energy derived from the rays absorbed, and the use made of it by the body, form interesting subjects for speculation, but lack of experimental evidence makes it impossible for any definite conclusions to be formed. Reference should, however, be made to the experiments of Dreyer, which showed that certain fluorescent substances, such as eosin and erythrosin, have the power of transforming rays of short wave-length into those of longer wave-length. In a paper published in 1908[1] Dr. Rosselet and I drew attention to the indications for attributing the same power to cutaneous pigment. Inability to find a solvent capable of dissolving melanin made definite proof of this hypothesis impossible.

The experiments of Weissner, demonstrating the powerful bactericidal action of the infra-red rays, show that it is not only the ultra-violet which are of therapeutic importance. On account of their greater wave-length and amplitude, these infra-red rays give out a considerable amount of heat when they impinge on the surface of the body, and in comparison with the superficial action of the ultra-violet rays they have quite remarkable powers of penetration. Malgat claims to have demonstrated their passage through hand, arm, and even thorax, but his experimental methods, especially with regard to the thorax, were not very satisfactory. On account of their heat the infra-red rays are also active in vaso-dilatation, which favours phagocytosis, and tends to relieve the congestion of the internal organs. Although it cannot be denied that excellent therapeutic results have been obtained with artificial light, especially with ultra-violet rays produced by the mercury vapour lamp, I am strongly of opinion that up to the present science has not yet invented an adequate substitute for sunlight; on this point I have the support of Finsen himself, who admitted that the ideal treatment for lupus was heliotherapy at a high altitude. In view of the fact that in nature we so frequently meet with organic substances or living cells which are affected only by rays of wave-lengths varying between definite and comparatively narrow limits, it seems not improbable that similar conditions apply to the human body, and that certain rays act on one type of cell and quite different ones on another. Were this the case, the advantages found in practice from the use of the total solar radiations would receive an easy explanation.

Climate.

Heliotherapy may be carried out in any place where the sun shines; but different points on the earth's surface show great variation in the quality of the sunlight which reaches them, and also in other factors affecting the cure.

To reach sea-level the sun's rays have to pass through the whole thickness of the atmosphere; over all our big cities the latter is rich in mists, dust, and micro-organisms of every kind, which absorb both heat and light-rays in a proportion sometimes as high as 95 per cent. This absorption not only deprives the patient of a large number of useful rays, but by heating the air may give the sun-bath a relaxing instead of a stimulating effect. At high altitudes, on the contrary, the air is transparent, free from solid particles, and easily traversed by the sun's rays, which pass through without absorption, and warm and invigorate the body of the patient while leaving the air cool and fresh. For this reason a much greater intensity of direct sunlight can be borne at high altitudes, and heliotherapy may be practised in every month of the year.

The Skin.

I feel it necessary at this point to make a plea for that much ill-used organ, the skin. We Europeans are apt to regard with a complacent superiority the way in which less enlightened races maltreat their bodies (e.g., the feet of Chinese women), but we ourselves would do well to imitate more closely certain less cultivated races with regard to the treatment of the skin. The paramount importance of this organ cannot fail to be realised when we consider the complexity of its functions.

It is, in the first place, an admirable protection against pathogenic organisms; it is the seat of cutaneous sensation, and an excretory organ second only in importance to the kidney; it is very closely concerned in the delicate mechanism regulating the temperature of the body; and finally, as a very vascular layer it plays an important part in the nutrition of the underlying tissues. By covering the body with clothes every one of these functions is interfered with to a greater or lesser extent. I have frequently noticed that the resistance of a patient against disease is closely proportional to his degree of pigmentation, and pigmentation does not take place under clothes. It is a well-known fact that cutaneous sensation is much more delicate in the uncovered regions of the body, and it is equally obvious that clothes, by preventing free evaporation, interfere with the excretory functions of the skin. The contrast between the tolerance to wide ranges of temperature shown by the face and hands and the extreme sensitiveness of the rest of the body gives some idea of the extent to which disuse atrophy of the heat-regulating mechanism has taken place. The increased vascularity of the skin produced by the sun's rays causes considerable thickening of the organ itself, and also appears to result in an increase of the adipose tissue

[1] Sur le rôle du pigment épidermique et de la chlorophylle. (Bulletin de la Société vaudoise des Sc. Nat., vol. xliv., 1908.)

beneath the skin. The splendid muscular development usual with heliotherapy, even in patients confined entirely to bed, is more difficult to explain; direct stimulation (possibly of electrical nature) by certain solar radiations may perhaps be involved, as vascular changes alone would hardly seem a sufficient explanation. When these facts are borne in mind, the frequently quite remarkable results obtained by heliotherapy are to a large extent explained, as it is only to be expected that the return of these numerous and important functions to the skin would have a most beneficial effect on the general health.

Action on Pathological Processes.

The secret of the sun's action on pathological processes is that while highly toxic to micro-organisms in general (and to the tubercle bacillus in particular), the solar radiations are not only harmless, but actually beneficial to the cells of higher animals. This specific action of sunlight was of great assistance in the treatment of suppurating war wounds.[2] The sun thus appears to increase the rate of disintegration of cells damaged beyond repair, while stimulating the activity of the undamaged cells. A torpid lesion (such as varicose ulcer) demonstrates particularly well this cicatrising action of the sun. Anæmia and rickets, essentially diseases of deficient sunlight, are similarly amenable to heliotherapeutic treatment.

Surgical Tuberculosis.

It is, however, in tuberculosis, and especially in the surgical varieties (bones, joints, glands, peritoneum, &c.) that the action of the sun is seen to its fullest extent.

It has long been realised that the severity of a tuberculous infection does not depend solely on the severity and extent of the anatomical lesion, but also, and to an even greater degree, on the state of the natural defences of the body; general treatment is therefore tending more and more to replace local interference of a surgical nature. In heliotherapy the results obtained are, in my opinion, at least as much to be attributed to the general as to the local action of the sun's rays, the complementary action of the mountain air being a further primary factor in the cure. The various stages in the reparative processes which heliotherapy causes tuberculous lesions to undergo are best followed by means of X ray plates taken at intervals of a few months. The decalcifying action of the tubercle bacillus is particularly well shown in these plates, but is apt to be rather misleading, as complete disappearance of a bone on the plate does not indicate that it is entirely destroyed. For instance, in hip disease the first plate often shows no signs of either head or neck of the femur or of the acetabular margin; after some months of treatment signs of recalcification appear and vague outlines become evident; these gradually become more definite and may eventually be as sharply defined as on the healthy side. In other patients, in whom the head of the femur has perforated into the pelvis, radiography permits us to follow, in some cases, the formation of a new joint. The first hopeful sign is the reappearance of a bony septum, vague at first in outline, between the head of the femur and the pelvic cavity; this becomes more compact and a new articular space between it and the reappearing head of the femur becomes evident; the new joint formed in this way may give considerable return of articular function in cases where this could hardly have been hoped for. In spinal caries similar changes may be observed, and tuberculous abscesses may be seen to disappear altogether, or, as is more frequently the case with adults, calcification of the residue may take place. It is in tuberculous dactylitis that changes in the calcium content of the bones cause the most striking results; phalanges which have entirely disappeared may be so completely recalcified as to be indistinguishable from the normal bones. The differentiation due to heliotherapy which takes place between irreparably damaged cells and their healthy surroundings is well illustrated by the behaviour of sequestra; sharp demarcation followed by spontaneous elimination is frequently observed.

Technique.

In order that the best results should be obtained from heliotherapy it is necessary that a definite technique should be employed. There are great individual differences in the adaptability of patients to this form of treatment, and in order to avoid excessive and possibly harmful reactions in every case it is necessary that progressive insolation should be carried out cautiously and any symptoms of intolerance taken into account.

[2] Reinbold: Revue méd. de la Suisse Romande. Grangée: Paris Médical, 26 déc., 1916. Rollier: Le Pansement solaire.

Exposure always begins with the feet, the legs, thighs, abdomen, and thorax following in this order with an interval of a varying number of days between each. Only a few minutes' exposure is allowed to each part on the first day of insolation; this amount is gradually increased until at the end of a period of time which varies with each subject—degree of pigmentation and absence of excessive reactions being the criterion—the patient is able to expose the whole body to the sun for several hours daily without any inconvenience either in summer or winter. Secondary infection without free drainage, pulmonary and abdominal tuberculosis, are conditions in which increased caution are necessary. Far from contra-indicating heliotherapy, however, they are greatly benefited by this form of treatment if properly carried out. Plaster apparatus is a great hindrance to heliotherapy and is almost invariably discarded, as not only does it interfere with the local action of the sun on the diseased part, but it also causes muscular atrophy, which is a great disadvantage when return of function begins, and compares most unfavourably with the thick covering of well-developed muscle, which is usual with heliotherapy, and forms an admirable support for a weakened vertebral column or joint. These cumbersome devices of plaster should be replaced by simple arrangements of webbing straps which give complete immobilisation and adequate extension while permitting free access of air and sun. I have no space here to describe in detail the orthopædic technique used for each localisation of the disease, and must refer the reader desirous of further information to my book, "La Cure de Soleil."

The Work Cure.

This most valuable factor in the treatment of tuberculosis was, I believe, first introduced by M. Paterson at Frimley Sanatorium.

As an adjunct to heliotherapy its value would be difficult to over-estimate; for in surgical tuberculosis the psychology of the patient is apt to be seriously affected by enforced immobilisation for many months, and mental depression invariably has its counterpart in the physical condition of the patient. Even in serious cases of tuberculosis of the vertebral column, hip or knee, much benefit can be derived from such handicrafts as wood-carving, weaving, basket-making, metal-work, painting on wood, toy-making, &c. Not only does this work cure benefit the patients mentally, but by enabling them to continue earning during their treatment it has in many cases made it possible for patients who would otherwise have left only partially cured owing to financial difficulties to continue treatment until cure was complete.

Prognosis.

Although the prognosis of surgical tuberculosis is exceedingly favourable when the lesion is closed, this can hardly be said to be the case when secondary infection with pyogenic organisms—on which the sun has a much less specific action—has taken place.

Cases of meningitis hardly ever occur, not one per annum, and in unfavourable cases death is almost invariably due to the secondary infection and the resulting amyloid degeneration or cardiac failure of toxæmic origin. Closed cases of pelvic or sacro-iliac tuberculosis invariably progress favourably with heliotherapy; but when secondary infection has once taken place the anatomical structure of these parts makes drainage so difficult and retentions so frequent that the prognosis becomes much more grave. Experience with cases of this type has made me more than ever insistent on the necessity of beginning active heliotherapeutic and altitude treatment as early as possible in all cases of surgical tuberculosis. It has been suggested that heliotherapy is more effective with children than with adults; I have always had a considerable majority of adult patients and have not been able to support this view, except, perhaps, in certain synovial infections of the knee and in genito-urinary tuberculosis.

Giving the results obtained with children and adults in separate columns my statistics since 1914 for osteo-articular tuberculosis only are as follows:—

—	Children.	Adults.	Total.
Cured	681 (86·5%)	1065 (77·2%)	1746 (80·5%)
Improved	51 (6·5%)	191 (13·8%)	242 (11·2%)
Stationary	43 (5·5%)	104 (7·5%)	147 (6·8%)
Worse and deceased	12 (1·5%)	20 (1·5%)	32 (1·5%)
—	787	1380	2167

These results were subjected to a strict radiographic control. Older statistics, up to 1914, dealing with all types

CASE 1 (see top row of page illustrations), aged 8½, on ski.

of surgical tuberculosis, gave the following proportions out of 1129 patients (662 adults, 477 children):—

Cured	945 (83·7%)	Stationary	41 (3·6%)
Improved	112 (9·9%)	Deceased	31 (2·8%)

In these statistics, as well as in the preceding, the cases that remained stationary, got worse, or died, are nearly all cases who suffered from secondary infection.

Maintenance of Cure.

No treatment, however rapid its effects, is really good unless it yields permanent results. It is obvious that if recently cured patients return immediately to those conditions of life which fostered the development of their disease a relapse is only to be expected; in every case, therefore, it is advisable that for some years at least the patient should work in suitable surroundings.

For children an open-air school where sun cure can be continued is the ideal half-way house for the convalescent, and the one under my direction has fully justified its existence. With regard to adults, my experience with farm colonies has confirmed my opinion that agricultural work has an admirable effect in consolidating a cure, and I am advocating their widespread establishment.

I have recently been occupied in preparing statistics to illustrate the permanence of cures reached by heliotherapy; unfortunately, the fact that my former patients are scattered all over Europe has greatly interfered with this work, and I regret that the figures are not yet ready for publication. I have already succeeded in obtaining photographs of a large number of patients whose cure was completed 10, 12, or 14 years ago; these, together with previous photographs taken before and after the treatment, were shown at the annual assembly of the "Association suisse contre la Tuberculose" on Nov. 14th, 1920. A few selections from the series are here given.

Prophylaxis.

"Dove non va il sole, va il medico" (where the sun does not go the doctor goes), is an old Italian saying, the truth of which is very evident to all those concerned in the treatment of tuberculosis. We know now that surgical as well as pulmonary tuberculosis is in the great majority of cases secondary to infection of the tracheo-bronchial or mesenteric glands; this usually takes place in childhood and may remain latent for many years, only becoming active when, for some reason, the resistance of the body is lowered. For these delicate or predisposed children I am applying the same treatment as for convalescents. The children have as much fresh air as possible day and night, with plenty of good and simple food, of which fresh farm produce forms a large proportion. School work is reduced to a subsidiary position, its object being merely to keep the mind in discipline; the use of very light folding desks and stools makes it possible for lessons to be held in the fields and the woods, the site being varied according to the heat of the day. In summer the children spend the whole day in bathing kit, and even in winter clothes can often be dispensed with, at all events during rest hours in the solarium. Much attention is given to Swedish drill, as I believe proper expansion of the chest and nose-breathing to be a most useful prophylaxis against a multitude of diseases. The results obtained by this open-air school have been most encouraging, and give reason to believe that in almost every case the disease may be completely eradicated before any manifestations take place, thus avoiding much suffering and expense.

We know that there is no surer way of building up the resistance of the body than life in the open air and sun, yet we are very slow to apply this knowledge to the conditions of our everyday life, and until we do so tuberculosis will continue to exact its heavy toll of victims each year.

DESCRIPTIONS OF ILLUSTRATIONS

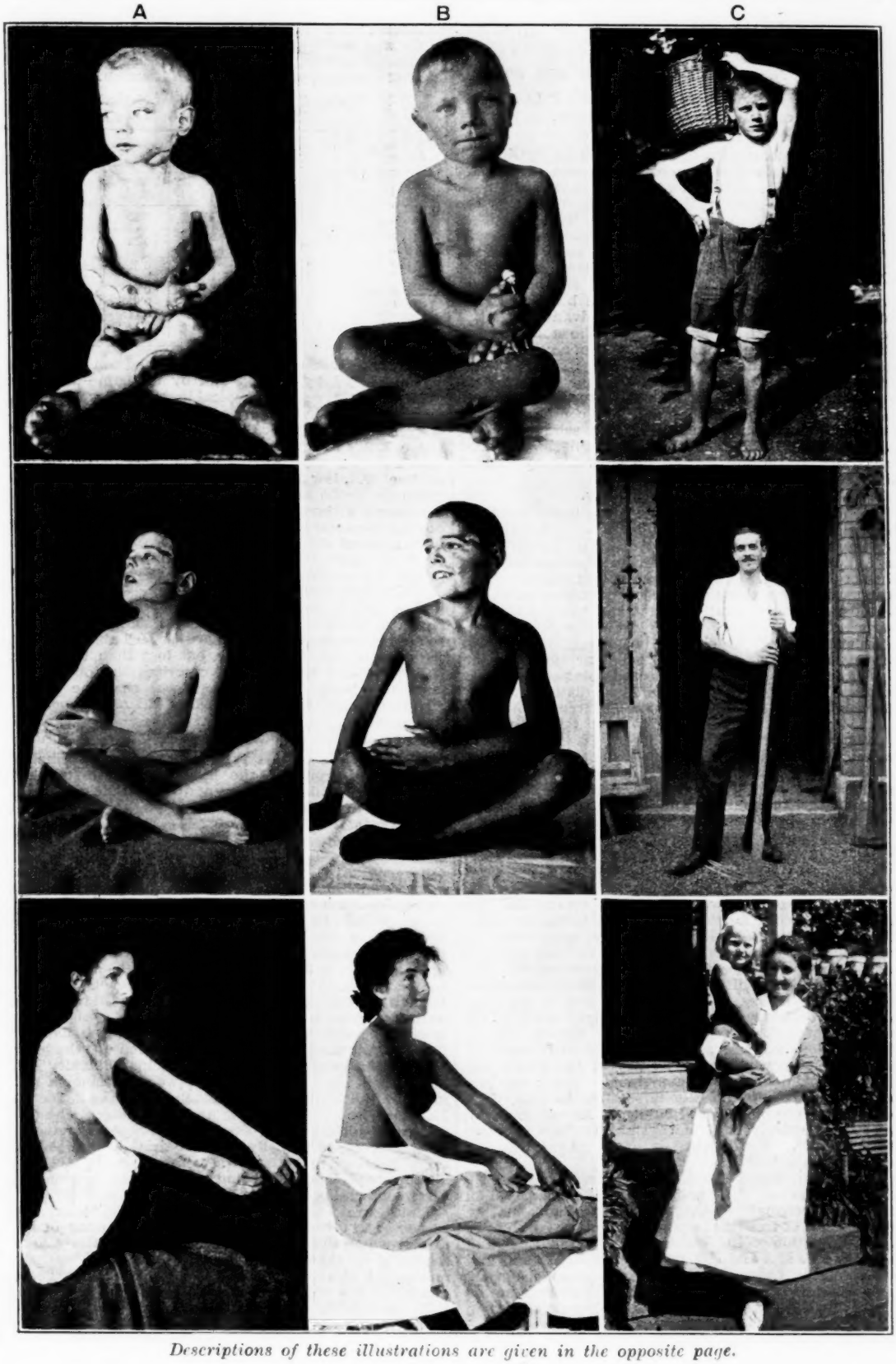
(see opposite page).

In each row (A) shows the patient at the beginning of treatment; (B) shows the effects of from six months' to a year's treatment; (C) shows the patient in home surroundings after periods of from 10 to 14 years from the taking of the first photograph.

CASE 1 (top row).—(A) Child, age 4½, arrived with 34 tuberculous foci, osteitis, periosteitis, adenitis, multiple fistulæ, tuberculosis of both feet, right hand, peritonitis, and advanced tuberculosis of left lung. General condition very poor, advanced cachexia, high temperature, and albuminuria. (B) One year later—all tuberculous foci cured and fistulæ closed. General condition completely transformed. (C) At age of 14½; cure completely maintained in spite of the patient having lived throughout the war in Germany, where he underwent considerable privation.

CASE 2 (second row).—(A) Child with 17 tuberculous foci on arrival, osteitis, periostitis, adenitis. One lesion in temporal region had been curetted. Secondary infection, fistulæ; affection of tracheo-bronchial glands and infiltration of right apex. (B) Complete cure six months later. (C) 13½ years after establishment of cure. Wheelwright and agricultural labourer. Did more than a year of military training without a day's illness.

CASE 3 (bottom row).—(A) Case of tenosynovitis and tuberculous arthritis of wrist, recurring after operation. Secondary infection, fistulæ; renal tuberculosis, nephrectomy, tuberculous peritonitis; tuberculosis of right apex, small lupus on right cheek. General condition poor; habitus phthisicus. (B) The same patient one year later. (C) The same patient 13 years after establishment of cure. In good health and very active as a nurse.



Descriptions of these illustrations are given in the opposite page.

THE CHEMICAL ESTIMATION OF GASTRIC FUNCTION

BY THE TEST MEALS OF EWALD AND BOAS.

BY J. H. RYFFEL, B.CH. CAMB., F.I.C.,
CLINICAL CHEMIST, GUY'S HOSPITAL.

MANY test-meals have been employed in the investigation of gastric function, but I propose to consider only the results of the two which have been most generally used—namely, that of Ewald, which consists of tea and toast, and that of Boas, which consists of oatmeal and water. The modified test-meal of Ewald consists of one pint of tea with a little sugar and milk, if desired, and about 2 oz. of toast, given as the first meal in the day, and removed about one hour afterwards. Some observers allow a little butter with the toast, but to omit the butter has the advantage that, if much fat is found in the contents of the stomach after the meal, its presence affords evidence of a considerable degree of gastric delay, as the fat must be a remnant from a previous meal. In removing the meal without the addition of water Senoran's aspirator is a very considerable aid. When obtained, the contents of the stomach are measured and filtered, the solid part being examined for blood, bile-pigment, organisms, and food materials, while the filtrate is subjected to various titrations.

Determination of Acidity.

For determining the acidity different indicators have been proposed. Total acidity is usually determined by titration with caustic soda, using phenolphthalein as indicator. The earliest indicator for free HCl was that of Günzberg. This has been shown to give results comparable with those of physical measurements, but as the test involves evaporation it is not convenient for purposes of titration. Töpfer introduced dimethylaminoazobenzene, which has been widely used, but the region of change for this indicator lies between N/1000 and N/10,000 HCl, and the end-point as ordinarily employed about N/5000 HCl, which is distictly too low in the acid scale for a determination of free HCl.

Although the term "free HCl" is in this connexion a misnomer, the indicator is of great utility, as organic acids produced by the Oppler-Boas bacillus, or by acid streptococci, never attain either in the stomach, or in culture in the presence of sugar, an acidity great enough to affect dimethyl, so that this titration is not affected by organic acids. Rolph proposed to use instead tropeolin 00, which reacts at N/200 HCl, while recently Cole and Adie have urged the use of thymol-blue working to an end-point $= HCl.N \times 10^{-2\cdot6}$, or about N/500. This indicator would leave a large gap between the total acidity and the free HCl, so that it would surely be better to retain dimethyl, and, in addition, adding a suitable indicator to the filtered contents to compare the tint obtained with a series of tubes containing known quantities of free HCl, so as actually to determine the concentration of hydrogen ions present. This procedure would overcome the difficulty that with dimethyl, owing to the presence of buffers in the liquid, a high result by titration does not necessarily denote a high degree of acidity, but it would be necessary to use Boas's test meal to avoid dealing with a pigmented fluid; the procedure would be practically impossible to apply to a blood-stained or bile-stained fluid. B. Moore employed the rate of hydrolysis of methyl acetate to determine the free HCl. The method is sound physically, but somewhat laborious.

Willcox developed the determination of a quantity of a different kind, the "active HCl." This is based on the method originally employed by Prout to demonstrate the presence of free HCl in gastric juice. It is essentially a determination of the loss of chloride on ignition, and includes free HCl and HCl combined with proteins and other volatile bases. Active HCl corresponds closely with the result of the titration of total acidity, unless organic acid be present, when the difference between the two measures the organic acid. Graham pointed out that the estimation of mineral, or non-volatile, chloride, which is involved in the estimation of active HCl, was itself of value, as this quantity was notably increased in carcinoma of the stomach and in regurgitation of duodenal contents into the stomach.

Table showing Results obtained by the Method of Willcox and Graham.

—		Grammes per 100 c.cm.				Blood.	Lactic acid.
		Free HCl.	Active HCl.	Acidity as HCl.	Mineral HCl.		
Normal		0·10	0·15	0·15	0·10	−	−
Hyperchlorhydria... ...		0·25	0·36	0·37	0·12	+	−
Carcinoma ventriculi.	1	0	0·0094	0·079	0·315	++	+
	2	0	0·05	0·196	0·27	++	++
	3	0	0·079	0·115	0·14	+	+
	4	0	0·106	0·13	0·24	+	−
	5	0	0·031	0·029	0·117	−	−
	6	0·14	0·24	0·25	0·17	++	−

The table shows results obtained on the lines recommended by Willcox and by Graham—namely, a typical normal result, a typical instance of well-marked hyperchlorhydria with pyloric ulcer, and six examples obtained from proved cases of carcinoma ventriculi. Of these 1, 2, and 3 are instances of pyloric carcinoma in which the presence of blood and lactic acid with absence of free HCl, low active HCl, and high mineral chloride leave no doubt as to the diagnosis; 4 is an instance of carcinoma without obstruction in which the presence of blood, absence of free HCl, active HCl below normal, and high mineral chloride are suggestive of the diagnosis. In 5, as there is no blood and the mineral chloride is not appreciably above normal, there is nothing to distinguish the case from other instances of hyperchlorhydria such as that found in pernicious anæmia; blood, however, was found in a later test-meal and in the fæces. In 6, an instance of carcinoma with HCl above normal, the mineral chloride is high but less than the active HCl. Besides the mineral chloride, the only other point to distinguish from ulcer was that the growth bled freely and that the bleeding did not respond to treatment.

Sources of Error.

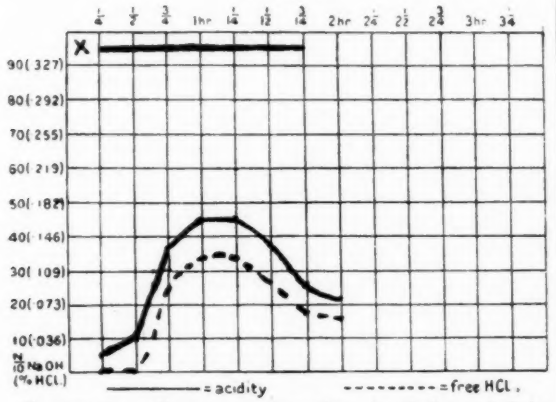
In test-meals of this type there are two principal sources of error: If the stomach empties quickly, as it frequently does in cases of duodenal ulcer, a small amount of material is obtained, which is rich in mucus, poor in toast, and contains HCl less than normal and a high mineral chloride. The remedy is to shorten the time so as to obtain a true sample of the meal. The other source of error is that aspiration is liable to cause some bleeding; there the remedy is to insist on examination of the fæces for blood in every case. If the blood in the test-meal is due to trauma it will not be found in the fæces; moreover, blood may be found in the fæces where it is not appreciable in the gastric contents. In this connexion I may note that a spectroscopic examination of the fæcal extract for acid hæmatin and hæmatoporphyrin, in addition to the ordinary tests for blood, is most desirable, and, when it gives positive results, removes all doubt that the blood found may have been introduced in the diet. Apart from sources of error, the principal difficulty is to distinguish, on the one hand, between carcinoma and ulcer of the body of the stomach, as in the latter the HCl may be relatively low and the mineral chloride somewhat high, and, on the other, between carcinoma and other cases with hypochlorhydria, as the indications obtained from the mineral chloride are not absolutely consistent, being occasionally normal in carcinoma and occasionally high in gastric atrophy.

The Ewald test-meal is notably lacking in two respects: it gives only the roughest indications of the rate at which the stomach empties, and, if the gastric secretion is abnormal in its time relations, entirely misleading figures as to acid may be obtained. These difficulties are obviated by the procedure introduced by Reyfuss and Hawk, in which the patient swallows a narrow tube, by which samples of contents are

CHARTS OF GASTRIC ANALYSIS.

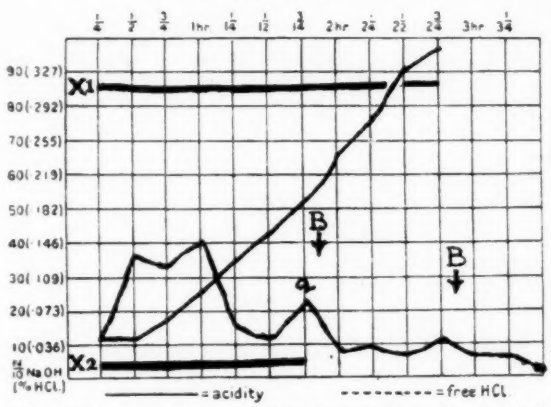
In the charts B = bile, X = starch, Y = sugar, Z = blood.

CHART 1.



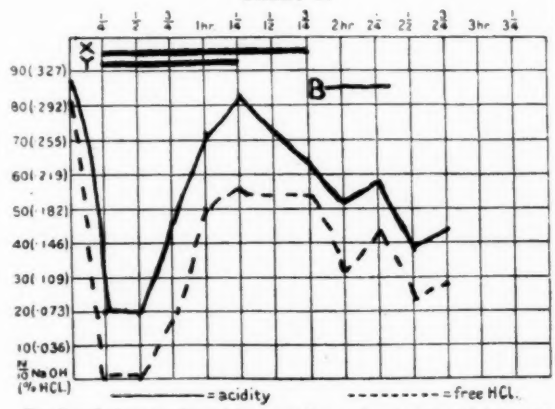
Showing the ordinary normal as given by Crohn and Reiss. In certain apparently normal individuals the acid may be much lower or much higher, and the stomach may empty more quickly. Bennett gives two and a half hours as the normal limit of time for disappearance of the meal. On the whole, the curve is characteristic of the individual, but it is subject to certain influences, of which the most important in practice are discomfort on the part of the patient, nausea, retching, and attempts to vomit.

CHART 2.



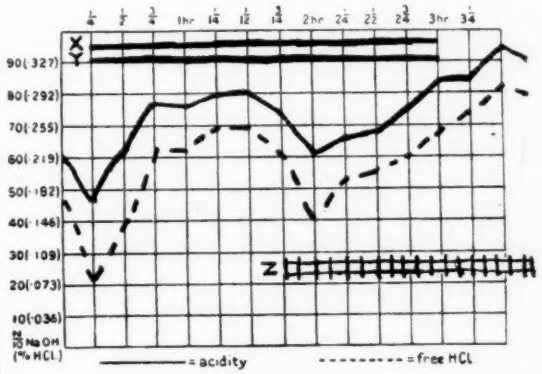
Showing two very different results obtained from the same individual—a case of hysterical vomiting; on the second occasion the patient did not take kindly to the use of the tube.

CHART 3.



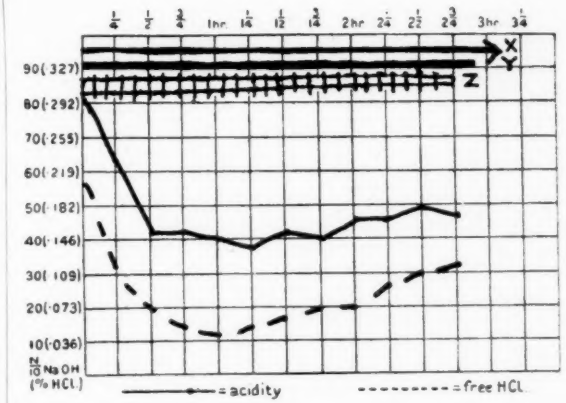
Duodenal ulcer confirmed by operation; showing the highly acid resting juice and rapid secretion of acid with rapid emptying stomach, which is characteristic of this condition.

CHART 4.



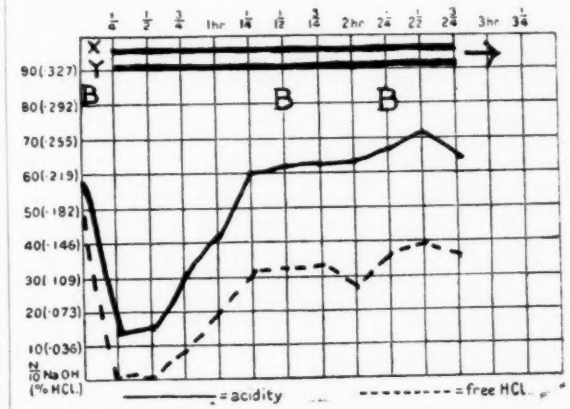
Pyloric ulcer without stenosis.

CHART 5.



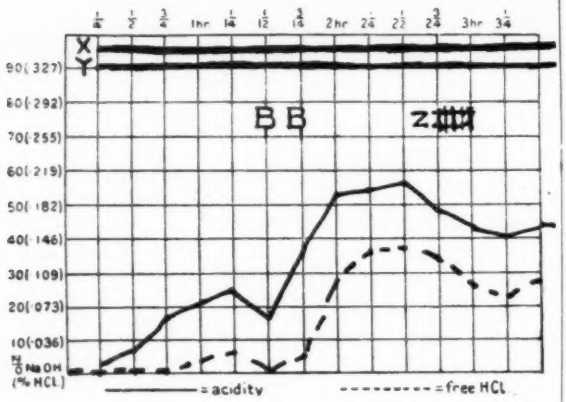
Pyloric ulcer with stenosis, in which the resting juice contained food materials, and the stomach was by no means empty in 2½ hours.

CHART 6.



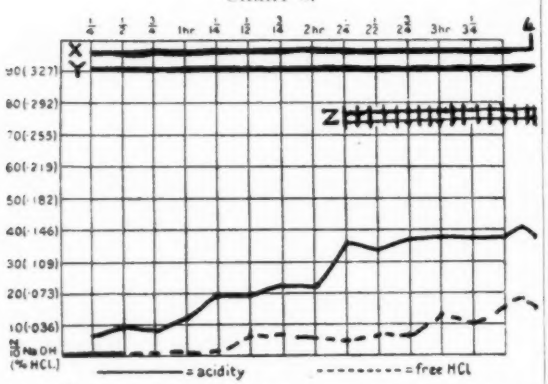
A similar type of curve to 4, except that there was no bleeding but at operation large gall-stones were found in the gall-bladder and no ulcer.

CHART 7.



Gastroptosis, with well-marked gastric delay.

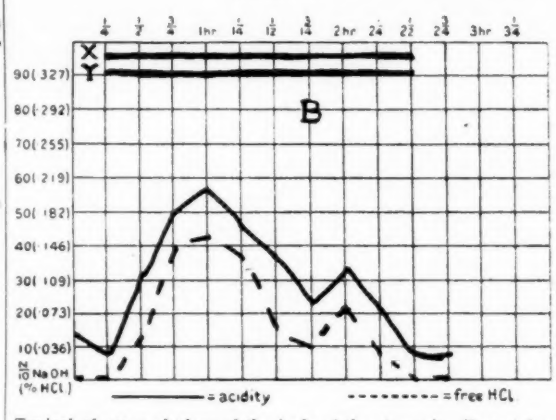
CHART 8.



A case diagnosed as carcinoma of the stomach. Charts 4 to 8 have two features in common: delay in emptying of stomach, and a continued rise in acidity as the meal proceeds. These two features serve to show that the stomach has difficulty in emptying, whether from spasm or stenosis of the pylorus or atony of the stomach with a normal pylorus. Other features serve to make the diagnosis between the different conditions showing this characteristic, thus the essential difference between 8 and 7 is that the former shows blood in the stomach and fæces, while the latter does not, except from trauma. Chart 6 is not characteristic of cases of gall-stones, but suggests that there may occasionally be pyloric spasm in this condition.

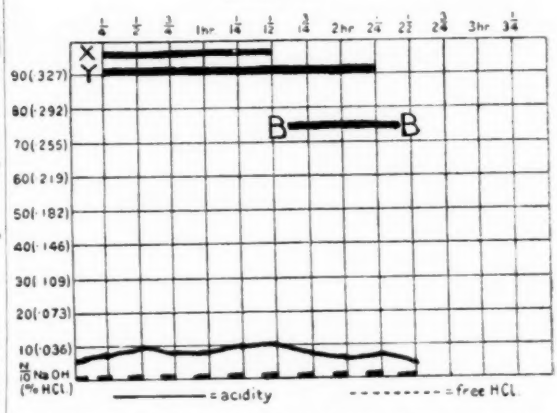
removed before the meal and for every quarter of an hour afterwards, until either the stomach is empty, or a sufficient time has elapsed to show that there is gastric delay, or continued secretion after the meal. The tube used is either Einhorn's duodenal tube, Reyfuss's tube, or Ryle's tube. Einhorn's tube is inclined to block and may cause slight bleeding from trauma. Reyfuss's tube is somewhat difficult to swallow. Ryle's tube is easier to swallow and less liable to block or to cause trauma. The meal used is either that of Ewald or that of Boas. Following Crohn and Reiss, we have used a modified Boas meal consisting of two tablespoons of oatmeal mixed with a quart of water, boiled down to one pint, strained through muslin, and given warm with salt to taste. The samples taken are between 5 and 10 c.cm. They are titrated with dimethyl and phenolphthalein indicators and examined for blood, bile, starch, and sugar. Disappearance of the starch is taken ordinarily as evidence that the meal has entirely left the stomach, but some of the starch is converted to maltose by the ptyalin of the saliva. If the acidity of the gastric contents rises sufficiently the action of the ptyalin is arrested, but if the acidity be low the action of the ptyalin proceeds, and sugar may persist longer than starch. In this case disappearance of sugar is the end-point. Results of the examination are expressed as Charts 1 to 10.

CHART 9.



Typical of cases of ulcer of the body of the stomach. Except for evidence of bleeding, which in this case was obtained from the fæces but not from the stomach, there is no chemical evidence of ulcer.

CHART 10.



Typical of marked lack of acid. In this case blood was present in the fæces and at autopsy a carcinoma of the stomach was found, but there is nothing in the chart to distinguish it from one of achylia gastrica.

Conclusion.

In conclusion, one may say that the fractional test meal gives results that are of great interest, but it serves rather for arranging the cases in various groups than for individual diagnoses. The actual diagnosis must be completed from further considerations, and especially by a clinical study of the individual case.

References.

Cole, S. W., and Adie, W. J.: THE LANCET, 1921, i., 423.
Crohn and Reiss: Amer. J. Med. Sciences, 1917, cliv., 857.
Graham, G.: Quart. J. Med., 1911, iv., 315.
Moore, B.: Biochem J., i., 274.
Prout: Phil. Trans., 1824, 45.
Reyfuss, M. E., and Hawk, P.: J. Amer. Med. Assoc., 1914, lxiii., 11.
Rolph, F. W.: Quart. J. Med., 1915, viii., 309.
Töpfer: Zeit. Physiol. Chem., 1894, xix., 104.
Willcox, W. H.: Quart. J. Med., 1909, iii., 93.

THE DUBLIN HOSPITALS.—**The result of the** united appeal and fete on behalf of the associated Dublin hospitals was announced a few days ago. Some £35,000 have been realised, of which £15,000 were due directly to the fete. The appeal had aimed at obtaining £100,000. Its comparative failure should prove finally that if the Dublin hospitals are to keep open they must look elsewhere than to voluntary contributions for the means. The sum recently realised can hardly do much more than make up the deficit on a year's—or perhaps a year and a half's—working.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF GUNSHOT WOUND IN WHICH THE BULLET WAS REMOVED BY MEANS OF THE ŒSOPHAGOSCOPE.

BY G. N. BIGGS, M.B., B.S. DURH.,

LIEUTENANT-COLONEL, R.A.F.M.S.; CONSULTING AURAL SURGEON, EVELINA HOSPITAL AND ROYAL AIR FORCE; SURGEON IN CHARGE, EAR AND THROAT DEPARTMENT, SEAMEN'S HOSPITAL AND ROYAL WATERLOO HOSPITAL.

THE following case is of interest and worthy of record in order to demonstrate for future use the advantages of the method adopted for the removal of a bullet in the neck. The only alternative was a deep dissection.

The patient, a private in the Irish Guards, was under the care of Colonel A. Fullerton, C.B., C.M.G., at that time senior consulting surgeon to the Boulogne Base. He first came under my notice as the result of a gunshot wound; the bullet had entered the right side of his face, penetrated the right antrum, fractured the septum, passed through the hard palate, missed the soft palate, and having entered the posterior wall of the pharynx about 1 inch above the cricoid cartilage had tracked down into the soft tissues, and was shown by X rays to be lying embedded in the muscles about 1½ inches below the cricoid cartilage exactly in the middle line.

Removal of the bullet would have had to be by an extensive dissection in the neck unless another method was found; it was desirable to avoid dissection, for the operation was bound to be followed by infection of the wound, since the bullet was lying in an abscess cavity. The latter fact was proved by the presence of a discharging sinus in the deep pharynx; the opening of this sinus closed from time to time, with the result that a swelling developed in that region and ruptured after a few days, with the free discharge of pus.

I was asked to see the case, and found, on examination with the laryngeal mirror, that there was a small sinus on the posterior wall of the deep pharynx in the middle line, from which protruded some small granulations. At Colonel Fullerton's suggestion I decided to make an attempt to remove the bullet with the œsophagoscope, and had the patient removed to No. 54 London General Hospital.

A general anæsthetic was administered and an œsophageal tube passed down until the opening of the sinus was reached; with great difficulty this sinus was enlarged and the tube passed down it until the bullet could be easily seen. This operation was a long and tedious one owing to the free oozing of blood from the granulations lining the wall of the sinus. The bullet was seized with forceps, and the tube, forceps and bullet slowly withdrawn; unfortunately, just as I was removing the instrument and the bullet the patient coughed violently, the smooth bullet slipped out of the forceps and was swallowed by the patient, but was passed per rectum four days later. The nasal opening of the antrum was enlarged under the same anæsthetic to allow of free drainage and portions of necrotic septal cartilage were also removed.

The patient made an uninterrupted recovery and was evacuated to England about three weeks later; in addition to the condition described he had also a gunshot wound in the right forearm, with a bad compound fracture of the radius and ulna.

I should like to express my thanks to Colonel Fullerton for referring the case to me, and to Captain A. T. Swan for the excellent way he administered the anæsthetic in what proved to be a long and difficult case.

A NOTE ON PERIARTICULAR ABSCESS AFTER SCARLET FEVER.

BY BERNARD E. MYERS, C.M.G., M.D. EDIN., M.R.C.P. LOND.,

PHYSICIAN TO OUT-PATIENTS, ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN.

THE following case was observed at the Royal Waterloo Hospital, and is of sufficient interest to be recorded.

P. R., a female, aged 5 years, was admitted to hospital on Jan. 11th last suffering from a distinctly swollen right ankle, which was very tender and painful. The swelling extended to the knee; pain was felt all over this region and in the right hip. The child was pale and looked extremely ill; temperature on admission 99·6° F., pulse 130, and respirations 27; the urine showed a slight trace of albumin, but was otherwise normal.

The history showed that seven weeks previously she had been taken ill with scarlet fever and admitted to a special hospital for treatment. Nothing of importance was noted except a slight albuminuria, and also four weeks after admission a rash developed which was alleged to be chicken-pox. Shortly after this occurred the patient manifested pain in the right ankle, which became steadily more swollen and painful. She had suffered from whooping-cough a year previously and had continued to cough, more or less, since then.

Upon examination of the child, who looked distinctly toxic, the condition of the ankle and leg was as described above, the former being very swollen, red, and exquisitely tender and painful. Pitting was observed over the leg, and fluctuation was felt over the lower part of the fibula. A few râles were heard in the lungs. The albumin noted upon admission soon disappeared and did not return.

It was decided to open up the area of fluctuation and this was done by Mr. J. R. M. Whigham within two hours of admission. From 2 to 3 ounces of pus and blood were evacuated from around the anterior and external surfaces of the joint capsules. It was noted by the surgeon that the subjacent bone and ankle-joint were red and appeared to be involved. It was decided, however, to await developments for from 24 to 48 hours before opening into the joint cavity. The temperature falling at once and the swelling, pain, and tenderness greatly subsiding it was deemed inadvisable to do anything further. In short, the patient made an uninterrupted recovery and left the hospital on Feb. 7th looking really well and able to walk without pain. The pus grew *Streptococcus longus*. The chicken-pox (?) rash, which was still present on admission, had the appearance of a streptococcal rash, and was not chicken-pox.

The interest in this case is the periarthritis and septic rash occurring about five weeks after the onset of scarlet fever and the evident non-involvement of the ankle-joint in the septic process. The question occurs, Was the scarlet fever responsible for the above-mentioned condition? It would be of great interest to hear of others who have had experience of similar cases.

A CASE OF DOUBLE DORSAL TRAUMATIC DISLOCATION OF THE HIP.

BY ALAN RANDLE, *M.C.*, M.D. LOND.,

ASSISTANT MEDICAL OFFICER, BERMONDSEY HOSPITAL.

ALTHOUGH the mention of a double traumatic dislocation of the hip conjures up visions of patients very seriously mangled and shocked, yet the record of the following case will show that, given the most favourable causative factors, such injury may be productive of little pain or shock and may necessitate only a short absence from a wage-earning existence.

William A ——, aged 44, was admitted to Bermondsey Hospital on Nov. 8th, 1920, with a history of accident. He was working near a concreted pit about 22 feet deep, used for storage of coal at a gas works. The pit was practically empty and there was only a little loose slack coal lying at the bottom. A truck being pushed along hit him in the back and he fell into the pit, turning a complete somersault and landing in a stooping position on both feet with his legs slightly apart; after which he pitched forward on to hands and forehead. Hence the heads of the femora were subjected to a force consisting of the weight of the trunk, increasing with every yard fallen, and to my mind also increased by the somersault turned in mid-air, which would give an action like swinging a hammer. The loose coal acted as a shock absorber, and the stooping position favoured a dislocation. The man was raised from the pit on a stretcher with ropes tied to the four corners—a matter evidently requiring very careful supervision—and was brought straight to the hospital.

The patient was suffering very little from shock; there was a small cut on the forehead and considerable bruising of the right foot. I shall not forget the appearance of his lower limbs when the bedclothes were turned up. The inner borders of the patellæ were touching, and the feet were rotated inwards strongly. The thighs would flex slightly, but in an inward as much as a forward direction. On the dorsum of the ilium each side could be felt a hard rounded tender lump. X ray screening showed double dorsal dislocation of the hip, and with considerable difficulty I managed to get a photograph of the two hip-joints on the one plate. In view of the extreme rarity of the injury I was determined to obtain lasting evidence, and the plate[1] is now in the possession of the Museum of the Royal College of Surgeons of England. The os calcis was found to be fractured also, a piece having apparently been torn off by a sudden strain on the long plantar ligament. Under ether anæsthesia reduction of the dislocations was very easily effected by flexion, slight internal rotation, circumduction and external rotation, and finally extension. At the end of the circumduction and external rotation on each side reduction was felt to take place, and neither took longer than half a minute. Slight traction was made by hooking the right arm of the operator under the flexed knee of the patient, and counter extension was provided by an assistant pressing with the hands on the anterior parts of the crests of the ilia. The joints were rested for three days after reduction, and then massage and passive movements were commenced. The right foot was put up in plaster and the patient was allowed to take his discharge on crutches three weeks after admission.

On referring to the literature on the subject I find that the injury has been recorded about 30 times, the nearest description to the accident above recorded being a case of the late Mr. A. E. Barker's. The dislocation is practically always of a mixed type, and this is the only instance I can find of the double dorsal variety.

I am obliged to the chief medical officer, Mr. R. C. Harkness, for permission to publish the case.

[1] We have seen a print which bears out the author's contentions but which cannot be effectively reproduced.—ED. L.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

COMBINED MEETING OF CLINICAL, MEDICAL, AND SURGICAL SECTIONS.

GRAVES'S DISEASE: ITS MEDICAL AND SURGICAL TREATMENT.

THE adjourned discussion on this subject was concluded on March 11th, Sir ANTHONY BOWLBY, President of the Clinical Section, being in the chair. Previous reports of the discussions appeared in THE LANCET of Feb. 19th (p. 379) and March 5th (p. 486).

Influence of Operative Measures on Mortality.

Mr. C. A. JOLL said that reference had been made to the views of Lieut.-Col. R. McCarrison and others that Graves's disease was due to intestinal stasis or some obscure sepsis. The evidence for this conception of the ætiology of exophthalmic goitre was extremely meagre and unsatisfactory. He had sought carefully among his own patients for septic foci, and had obtained the help of his colleagues in investigating those areas which were in the province of the special departments, and had arrived at the conclusion that there was no ground for believing that Graves's disease was caused by intestinal or any other type of septic absorption. In attempting to estimate the mortality of Graves's disease statistics were quite valueless unless we rigidly excluded all those forms of hyperthyroidism which were not associated with the histological change so typically seen in Graves's disease. Nothing had more tended to obscure the truth than the attempt to group all forms of hyperthyroidism together by introducing such terms as "false Graves's disease" or "formes frustes," &c. No disease had a more definite clinical and histological picture than Graves's disease, and it was very seldom that one had any real difficulty in referring a given case to its proper group, yet he was constantly seeing patients whose case had been diagnosed as Graves's disease and who had been treated for months by rest, X rays, &c., but who were really suffering from encapsuled tumours in the thyroid gland which should have been removed without delay. In true Graves's disease the danger of the operation and the degree of benefit likely to follow depended very largely upon the length of time during which the disease had been present. No surgeon who had had an extensive experience of this work would deny that absolute cures were not to be expected if those toxic changes in the various viscera, which were so well known to occur in the later stages of the disease, were already advanced. On the other hand, he had found that complete cure in the most rigid sense was possible if the operation was done sufficiently early and an adequate amount of the gland removed. He was convinced that if every case of Graves's disease were treated surgically on sufficiently radical lines within three to six months of the onset of the disease the mortality would fall to a negligible figure and cure would be absolute. Unfortunately, at present we did not always see these patients at this early stage, and therefore special precautions were necessary to determine whether an operation could be undertaken with reasonable safely, and further, what type of intervention was wise. He entirely agreed with those who advised a period of rest in bed before the operation, and this might be as much as six months or as little as a week. He was sure that local anæsthesia was not the panacea for operations in Graves's disease. He used it, however, where the patient preferred it, and he employed it in the presence of advanced myocardial disease, but the plea that its use was a dominating factor in reducing mortality could not be maintained, since the results under light open ether in skilled hands were quite as good as those claimed by the advocates of local anæsthesia. The latter, too, was often unsatisfactory.

Treatment by Ligation of Thyroid Arteries.

Very little had been said during the discussion on ligation of the thyroid arteries as a method of treatment. He was a convinced advocate of the ligation of the superior thyroid arteries in very mild cases, which he had seen cured by this method of treatment, and as a preliminary step in grave and advanced cases. The operation was simple and was very suitable for local anæsthesia; a striking degree of improvement often followed. It was generally necessary to resect a part of the gland three to six months later, and such could be done at this stage with less risk than would have been involved in immediate resection. He had only once injected boiling water into the gland, as advocated by Porter. The patient had been operated on elsewhere before and apparently the operation had had to be abandoned owing to hæmorrhage. When he attempted to expose the gland he found that it had become so bound up with the muscles that no plane of cleavage could be found, and he therefore adopted Porter's method as a pis-aller. He was surprised to hear a few months ago from the patient that she was perfectly well. It was to the gentle handling of the gland that he would ascribe the improvement in the statistics at certain clinics. It had been suggested that local anæsthesia helped in this, but it should be recognised that to avoid hæmorrhage was the essential point in this class of surgery, and that this could only be obtained by absolute gentleness, and that the type of anæsthesia had nothing to do with the delicacy of the surgeon's manipulations. The amount of gland to be removed could not always be decided before the operation, as it might be necessary to modify one's plans as the operation proceeded, but he set out, as a rule, to excise three-quarters to four-fifths of the whole gland. Hemithyroidectomy would not cure Graves's disease, though it would generally improve the patient's condition. He was unable to understand those who claimed that it was necessary to remove every scrap of gland tissue in the neighbourhood of the recurrent nerve. If a small portion of the gland were left in this situation cases of recurrent nerve paralysis did not occur, and he understood that the incidence of this disastrous complication was very high where this precaution was not adopted. He had often examined this little piece of gland during secondary operations for the removal of a further portion of gland, and in no case had he seen any evidence of its hypertrophy. The solution of the problem of the treatment of this disease seemed to him to lie in the direction of earlier operation, more extensive resection, and avoidance of hæmorrhage during the operation.

The Present Deadlock.

Dr. C. M. WILSON said that there had been a disquieting similarity between this debate and that of 1912. For the most part it was necessary to refer to the date at the top of the page to assign this or that speech to its proper period. Small advances in surgical technique had certainly occurred, and a field that was then the province of a few surgeons was now tilled by many. But in the main a decade had gone without bringing final answers to questions which vexed them then. And while they were marking time they had remained divided into two camps, and not only were the two camps unable to convince each other, but they had not found it possible to present their facts in such a manner that those who belonged to neither could sit in judgment between them. And this was the position not with regard to some difficult and intricate problem of causation, but about the actual results of treatment. What was the secret of this confusion? Was it not because the terms used to describe the condition of a case or group of cases either before or after operation did not succeed in conveying to others the type of case they had in mind? They were in doubt as to what was included under the term Graves's disease and what was excluded. And even when they knew that they were baffled by what was meant by mild, moderately severe, and severe cases. They needed standards. The rational way of ending this state of

affairs, if it could be ended, was to express in figures the degree of severity of a case of Graves's disease at any one time, so that all might know the type of case described and be in a position to compare accurately the results of different methods of treatment. It was these considerations, he said, that had led him nearly a year ago to check his clinical observations by measurements of basal metabolism by a modification of the method in use at the Mayo Clinic. This method possessed the advantage that it was admittedly more accurate, and the apparatus more portable, than Benedict's instrument, which, however, had the advantage that it did not require the technique of gas analysis; but he could not enter here into the respective merits of the two different methods of obtaining measurements of the basal metabolic rate. The point was that mathematical measurements could be made by either method of the toxicity of a case of Graves's disease at any one time. These measurements would, he hoped, provide the missing link between the worker and the reader of his printed results. For example, if a case was admitted to hospital with a metabolic rate of 70 per cent. above normal, and this rate was brought down by treatment to 35 per cent., those figures conveyed to others the exact toxicity of the case before treatment and the measure of success achieved. But if, on the other hand, a case which they would now label moderately severe became after treatment a so-called mild case of Graves's disease, no one except those in charge of the patient was really much the wiser.

The Importance of Early Diagnosis.

But these measurements were not only valuable in the selection of the type of treatment, and in following its results as they watched a case of diabetes by estimations of the percentage of the urinary sugar. They were particularly helpful in early diagnosis, of which they had heard too little in that debate. At the present time if unusually favourable results were reported in the treatment of Graves's disease they were met with the criticism that those cases were not Graves's disease at all, because they lacked this or that sign of the complete classical picture, till they were led to question whether this disease had a youth at all, or whether it sprang into being fully formed, like Pallas Athene from the brain of Zeus. The term pulmonary tuberculosis was not confined to cases with cavity formation, and it was no more rational to restrict the name of Graves's disease to a late and intractable stage of the malady. Basal metabolic measurements would provide an incentive to the early treatment of this disease by carrying assurance to the physician that there was actual over-activity of the thyroid, and by convincing him that at such a stage the over-activity could be rapidly reduced to normal limits. They might therefore look for a time when severe and moderately severe cases, around the treatment of which that discussion had so largely hinged, would become clinical curiosities. Pending that time they must evolve some rational procedure in the selection of the line of treatment of such cases. The type of patient to which he was referring generally improved with rest in bed. The metabolic rate fell, for example, from 60 per cent. above normal to 35 per cent., but in many cases after a variable period no further fall occurred, the basal metabolic rate remaining stationary. There were then two alternatives—to trust to time in the faith of Sir William Hale-White that it would prove a reliable ally, and that meanwhile no great harm would befall the patient or the patient's tissues, or, on the other hand, to seek by surgery or X rays to reduce further the basal metabolic figure to normal. It was the choice between these two alternatives that was the difficulty. It might be profitable to consider certain factors that appeared to be delaying the solution of the problem.

The Rôle of the Physician in Graves's Disease.

Primarily, as he had already said, the lack of standards impeded them, but the solution was not brought nearer by a certain lack of detachment very noticeable in that discussion. He would enter a plea that the rôle of the physician in Graves's disease was not as the advocate of this or that method of treatment, but that he should speak as from the bench and with a like authority. There were too many advocates. Some speakers, for example, had contended that the desired result in that disease was more certainly and more permanently attained by operation than by any other means. This was a comparative claim. It implied that the surgeon either had personal and prolonged experience of these other methods or, in default, that he had access to published statistics with which he could compare his own results. But, as they knew, no such data existed. Without such intimate experience of alternative measures those surgeons' results had only the value of uncontrolled experiments. Then there were other speakers who had never seen any improvement from X rays. He would invite them to check their clinical observations by metabolic measurements. They would find that when rest had done all that it could do in many cases X rays would effect a further fall, often to normal. In America, such careful workers as Means and Aub affirmed that when the cases were followed for several years there was very little to choose between the end results of surgery and X rays. He could not escape the feeling that when the same time and thought had been given to working out the dosage and other details of technique as had been devoted to elaborating surgical methods, a more favourable verdict would be passed.

Finally, there was the physician who was averse to surgical interference in any circumstances whatever, on the ground that operation was both unsafe and unnecessary. Such a view, though apparently at variance with the clinical experience of most, had not been finally dismissed, because the criticism directed against it had been vague and ineffective. Surgeons brought to these meetings patients and photographs of patients to prove that thyroid over-activity could be controlled by operation. But that was not the point. The immediate benefits of surgery were not in question; they were rather concerned with the permanency of such results and with the necessity of operation. The case against the surgeon was that operation was unsafe and that it was unnecessary. The risk might be immediate or remote. But if the results of surgery were all that had been claimed, he confessed that he was not greatly perturbed by a 5 per cent. mortality after operation. Those who were had been more fortunate in the results of conservative treatment than he could claim to have been. He, however, was much more concerned with the more remote danger of hypothyroidism. The more they worked in this field the more they came to question not how much of the gland they might safely remove, but whether, taking a wide view of the thyroid's activities, they dared remove any. On the other hand, certain observations in metabolism that he had made demonstrated that this risk of hypothyroidism was not confined to cases treated surgically, but was present after X rays and even after the cure that nature brings about. The point they had to settle was, Did a certain degree of hypothyroidism short of classical myxœdema, but involving a measure of impaired health of which we had taken too little notice in the past, commonly occur, and in that event was surgery the most frequent offender? They might look to basal metabolic measurements to enlighten them on this point. Finally they came to the question, Was operation necessary? and if they were not greatly intimidated by the mortality they would want to know whether Mr. Dunhill's contention that a comparatively large number of patients with this disease suffered grave and permanent damage to their tissues held against Sir William Hale-White's contention that few in fact did so suffer. If they agreed with Mr. Dunhill it was clear that if they shunned surgery altogether many were deprived of the chance of complete recovery. But if they agreed with Sir William Hale-White, then all they stood to lose by adopting conservative measures was a period of invalidism extending perhaps over some years, and the fact that such a period of enforced idleness was for many economically impossible. But even if they agreed with Mr. Dunhill, surely the way to prevent such irreparable damage to tissues lay in early diagnosis,

and not with the scalpel. He had made frequent measurements of basal metabolism in 140 cases suffering from hyperthyroidism, the results of which he could not give there. For the moment he was concerned to rescue the method of measuring basal metabolism from the charge that might be formulating in some minds that it was the latest fad in instruments. They needed standards; basal metabolism supplied them. There was a natural reluctance to replace clinical observation by laboratory methods, and the value of any procedure was directly proportional to its simplicity and its general applicability. If records of the pulse and weight of the patient provided what was necessary there would be no place for those measurements, but the pulse, though fairly accurate as a relative gauge of the patient's condition from day to day, was far from an absolute measure of the toxicity in a particular case; it did not furnish the standard for which they were seeking, while the weight was a singularly erratic index to the patient's progress. The criticism that basal metabolic measurements were too complicated to win a permanent place in the physician's everyday methods came curiously from those who had employed the electrocardiograph in selecting cases for operation. He hoped that these measures would come into general use, so that before the next discussion it would be possible for results to be expressed in a manner understood of all.

Not a Disease of the Thyroid Gland.

Dr. LEONARD WILLIAMS contended that cutting operations on the thyroid gland were altogether inadmissible in Graves's disease. Graves's disease was not only not a hyper-thyroidism, but it was not a disease of the thyroid gland at all. There were cases, and many of them were very severe, of Graves's disease in which there was no enlargement of the thyroid. The most outstanding features of the complaint—namely, exophthalmos and cardiac troubles—were due to the implication of other glands. As Maurice, of Lyons, had pointed out, exophthalmos was due to adrenal excess. The cardiac symptoms were due to enlargement of the thymus gland. Graves's disease was due to a toxæmia in which all the members of the endocrine hierarchy were involved. The only way of treating the disease was by discovering the source of the toxin and eliminating it. The toxin was gastro-intestinal in a large percentage of cases, and could only be successfully dealt with by dieting and, if necessary, intestinal antiseptics. The responsibility of the thymus was a point too much neglected. It was enlarged in about 85 per cent. of the cases, and its enlargement caused not only the cardiac symptoms by direct pressure on the base of the heart and the great vessels, but also many of the nervous symptoms by pressure upon the pneumogastric, the sympathetic, the phrenic, and the mental symptoms by interfering with the drainage system from the brain. There was no more justification for the ablation of one lobe of the thyroid in Graves's disease than there would be for the removal of one kidney in diabetes.

Dr. S. A. K. WILSON said that he was disappointed that so little had been said of the pathology of a disease, for which so many methods of treatment had been advocated. He was absolutely in agreement that exophthalmic goitre was not a disease of the thyroid gland, but regarded it as a neuro-glandular disease. Changes were well recognised as occurring in the intermediolateral tract of the spinal cord. In seven fatal cases changes had been found in this tract. It was impossible to dissociate the nervous side from the picture of Graves's disease, nor should it be ignored. At present the disease was being treated from without, but he hoped that later it would be treated from within.

X Ray Treatment of the Disease.

Dr. MARTIN BERRY spoke of the advantages of X ray treatment which, he said, could be carried out in most cases without taking the patient away from work, without admission to a nursing home or confinement to bed. He recorded a series of cases in which prolonged rest had not been found necessary to effect a cure with X rays. He considered cases as cured when the nervous symptoms disappeared and did not return. The treatment was not contra-indicated, except in cases where there was actual pressure on the trachea. His principle in general had been to administer small doses at short intervals to acute cases, and larger doses at longer intervals to those more chronic. The cases he narrated he said were representative of many others, and were brought forward to show that in some cases it was possible to cure exophthalmic goitre by means of X rays, and that they merited some place in the treatment.

Reply to the Discussion.

Dr. HECTOR MACKENZIE, in reply, said that he could not agree that the present discussion showed no advance on that of 1912. The safety of the operative treatment had been enormously increased. Of the cases in which he had coöperated with Mr. Dunhill, none had been lost and all had benefited. The operation was now comparatively safe. He was disappointed in Mr. Joll's view of the importance of local anæsthesia, and that of Mr. J. Berry and Mr. Joll on ligature of the arteries. He had never seen a satisfactory result from ligature, but had met with disaster. It was not worth while tying the vessels, when far better results followed thyroidectomy. He thought that the fact that treatment applied only to the thyroid cured the disease showed also its source. Dr. Florence Stoney's series of cases treated by X rays was a very important contribution to the discussion; in his view X rays or operation formed a part and not the whole of treatment. Estimation of the metabolic rate was no doubt of the highest value, but he was always afraid of any procedure which made treatment more difficult and did not think it would be of permanent utility. Mr. A. J. Walton, he felt, was inclined to underrate the good results of medical treatment; it must be remembered that surgeons only saw the medical failures, as a rule. The outlook for these patients was better than at any previous time. Every effort should be made to cure by medical means, but a considerable number with this alone drifted into invalidism, and for these surgical treatment was especially of value.

Mr. T. P. DUNHILL, in reply, doubted the wisdom of including all cases under one term "hyperthyroidism," and said that he made a point of differentiating the various forms as clearly as possible. He had especially not referred to operative technique. In his view ligature of the vessels if necessary was not easy, and if easy was not necessary. He could not accept Mr. J. E. Adams's suggestion of inserting radium into a part of the gland left in situ, and thought that any tinkering with this part was unsafe and materially increased the risk. Nor could he agree with Dr. Leonard Williams that the thymus had a very important influence, since the symptoms disappeared altogether after an operation in which the thymus was not touched. The discussion led to the conclusion that the physician was the person to be in charge of cases of Graves's disease, to direct the various kinds of treatment; if he found that a case was not progressing as it should he should call in a surgeon. With regard to Sir William Hale-White's statistics, he maintained that cases of Graves's disease did not appear in the Registrar-General's reports under their appropriate heading, but as acute mania, renal disease, &c.

SECTION OF LARYNGOLOGY.

A MEETING of this section of the Royal Society of Medicine was held on March 4th, Dr. JOBSON HORNE, the President, being in the chair.

The late Sir Felix Semon.

The PRESIDENT made sympathetic reference to the recent decease of Sir Felix Semon,[1] founder of the old Laryngological Society of London, and for 30 years a distinguished laryngologist in London. He said members of the section could never forget the work which Semon did for laryngology and for the advancement of the specialty. A resolution of condolence with the members of the family was passed.

[1] An obituary notice of Sir Felix Semon appeared in THE LANCET of March 12th.

EXHIBITION OF CASES AND SPECIMENS.

New Growth in Bronchus.

Sir J. DUNDAS-GRANT showed a middle-aged man from whom he removed a new growth of the left bronchus. He was seen 13 months ago because of cough and shortness of breath of 12 months' duration, the last few days streaks of blood occurring in the expectoration. He had been in a sanatorium, and had wasted somewhat. The dyspnœa was accompanied by stridor, which was mainly inspiratory, and without excursion of the larynx. Tubercle bacilli were never found. Bronchoscopy showed a pale, flapping growth, with fimbriation. The growth was removed by bronchoscopy, and breathing was so much easier that the patient soon left the hospital, with the tracheotomy wound closed. The patient had remained comfortable until a few weeks ago. On direct bronchoscopy a smooth rounded growth was seen, apparently growing from the outer wall. With Killian's forceps only a fragment could be brought away, and as there was now greater comfort the patient was averse to further procedures at present.

The Canfield Operation for Suppuration of Antrum of Highmore.

Sir J. DUNDAS-GRANT also showed a patient on whom the Canfield operation had been performed for antral suppuration. In the discussion on the case most of the speakers expressed their preference for the route through the canine fossa.—Mr. LAWSON WHALE, however, pointed out an advantage in the Canfield operation in that it gave a better view into the cavity than did the canine fossa route, hence it was better for removing any polypi which might be present.

Cystomata of the Larynx.

The PRESIDENT demonstrated, by means of the epidiascope, a number of specimens of cystoma of the larynx. He said cysts of the larynx were not common, but there was much difference of opinion on the point. Sir Morell Mackenzie regarded them as the rarest of the laryngeal tumours. Moure, of Bordeaux, however, considered cysts of the larynx to be the most common form of innocent neoplasm met with in the larynx. He (the President) also showed a retention cyst of the epiglottis, and one of the vocal cord, and a traumatic cyst, which latter developed on the site of a laryngo-fissure operation.—Dr. IRWIN MOORE showed a drawing of a cyst of the larynx which was recently discovered accidentally by Professor Shattock, and illustrations of several other cases. He remarked that Cohen stated he had not seen a cyst of the larynx until 1919 in 20 years of out-patient work, and this one originated in the anterior part of the ventricle.—Mr. HERBERT TILLEY referred to a very large cyst which he encountered in his practice, and which twice nearly suffocated the patient. The man, at these crises, relieved himself for two or three weeks by putting his finger down and bursting the cyst. Mr. Tilley punctured the cyst and removed most of its wall; but in a few weeks a cyst was again there, as large as ever, and a swelling was present in front of the neck. Mr. W. Trotter thereupon, by a long operation, dissected out the cyst, which included the thyroid bursæ, and was traced into the larynx. This showed that cysts which appeared to be intra-laryngeal might be there only by accident, and have their origin outside the larynx; they might be due to defective fusion of branchial clefts.—Sir W. MILLIGAN spoke of two cases of blood cyst on the vocal cords in his practice, both of which he removed.—Dr. J. DONELAN mentioned an interesting case of multiple cysts of the larynx which occurred in the practice of Sir Morell Mackenzie in 1889. There were in the patient three cysts in the epiglottis, of fusiform shape, and they were stowed away in the gullet.

Bilateral Paralysis of Internal Tensors.

Mr. PHILIP FRANKLIN showed a girl, aged 12, who suddenly lost her voice six months ago. Ever since her fourth year she had had short periods of aphonia. On expiration the arytenoids were seen to meet, the cords being bowed. The mucosa of the nose and pharynx was atrophied. He asked whether the condition was functional or a sequel of nasal infection.—Dr. DONELAN did not regard it as true paralysis, but wasting of the internal tensors probably due to myositis the result of over-functioning.—Mr. WHALE thought there was posticus paralysis as well as tensor.

Case of Lingual Thyroid.

Dr. G. W. BADGEROW showed a woman singer with a lingual thyroid, which was discovered accidentally.—Mr. W. G. HOWARTH referred to three similar cases which he had shown at various dates. If these caused trouble and operation was contemplated the operator should first satisfy himself that the patient would have sufficient thyroid tissue left. If the tissue involved was all the thyroid the patient possessed, one could only take away the top of it and treat with the galvano-cautery. He had found 95 cases recorded.

Obstruction of Œsophagus by Foreign Body.

Mr. SOMERVILLE HASTINGS related two cases of obstruction of the œsophagus by a foreign body acting as a ball-valve. The first was that of a woman, aged 30, who 13 years ago was found to have constriction of œsophagus, with marked dilatation above it. She improved somewhat and took food better. Eight years ago, however, she had another attack, but improved in six weeks. In September, 1920, the trouble having recurred, the œsophagoscope was passed and a cherry stone was found 11 inches from the incisor teeth; it rested like a ball-valve on a smooth fibrous stricture of the œsophagus. The stone was removed, and swallowing had been normal since, and the patient soon increased in weight. The second case was that of a woman, aged 52, who for several years had had occasional difficulty in swallowing, which manipulation of the neck relieved. Œsophagoscopy revealed, 8 inches from the upper incisor teeth, a large hard pea. Its removal led to disappearance of all symptoms.

MEDICAL SOCIETY OF LONDON.

THE CHEMICAL ESTIMATION OF GASTRIC FUNCTION.

AT a meeting of this society, held on Feb. 28th, with Sir WILLIAM HALE-WHITE, the President, in the chair, a discussion on this subject was opened by Mr. J. H. RYFFEL, whose paper appears in full in this issue of THE LANCET.

Dr. J. A. RYLE briefly described the results of his experience with the fractional test-meal based on personal experiments and employment of the test in out-patient and private practice, and also on an extended investigation of normal subjects in concert with Dr. T. I. Bennett. He claimed that the information afforded by the test, both in respect of gastric motility and gastric chemical function, made it a superior test to the one-hour test-meal of Ewald, and considered it to be the best single method of estimating gastric efficiency. He emphasised the importance of measuring and otherwise studying the resting secretion, and of macroscopic inspections of the serial specimens, and showed charts illustrating the diagnostic features of curves obtained in cases of pyloric stenosis due to ulcer and to growth, of duodenal ulcer and achylia gastrica. With further curves he demonstrated the application of the method in determining the mechanical and chemical efficiency of the operation of gastro-jejunostomy. In summarising, he stated that the method, by combining a 12-hour and a continued test, was most valuable in the diagnosis of pyloric obstruction and its cause; that curves characteristic of duodenal ulcer were very constantly obtained; that in achylia gastrica there was also a characteristic curve; and that in many other unclassified dyspeptic conditions, information of help to the physician from the therapeutic point of view, was frequently obtained by a fractional gastric analysis.

Mr. E. C. DODDS said that he had found that measurement of the alveolar CO_2 tension before and after a meal showed a rise in such tension, followed later by a fall; he showed diagrams taken from normal and pathological cases demonstrating this phenomenon,

particularly one showing how, in a subject on whom gastrectomy had been performed, the initial rise was absent, but the later fall—which he believed was due to secretion from lower portions of the alimentary tract—was well marked. He said that the evidence that the degree of such changes in alveolar CO_2 tension was quantitative would be brought forward during Dr. Izod Bennett's communication.

Dr. T. IZOD BENNETT began his communication by stating that he did not consider that any really valuable estimate of gastric function could be obtained by any analysis made at one fixed period in the cycle of gastric digestion. He showed diagrams to illustrate how, at the end of one hour, the acidity of many stomachs gave the same reading, whilst at a later period the curves of percentage acidity might become widely divergent in such cases. He then showed the results of the investigation of gastric secretion in normal men made by himself and Dr. Ryle; he drew attention to the four normal types, and demonstrated the curves of alveolar CO_2 tension in each of these types made by Mr. Dodds; he emphasised the striking confirmation of these results, and the enormous variations in alveolar CO_2 tension after a meal seen in certain hypersecretory types.

Dr. R. L. MACKENZIE WALLIS said that his experience had so far been confined to the one-hour test-meal, using the well-known Ewald meal for this purpose. This test-meal enabled one to make a complete analysis of the meal, including the estimation of total acidity, free hydrochloric acid, physiologically active hydrochloric acid, inorganic chlorides, total chlorides, organic acids, nitrogen content, and ferment activity. In carcinoma of the stomach free hydrochloric acid was usually absent, and the active hydrochloric acid much diminished. In addition, there was one very characteristic feature—the relative increase of mineral chlorides. This increase of mineral chlorides in carcinoma of the stomach was due, in his opinion, to interaction of the hydrochloric acid secreted with organic acids derived from the growth. In a series of nearly 2000 cases where this complete test-meal analysis had been carried out several interesting points had been revealed. The test-meal diagnosis had been found to be correct in 70 per cent. of cases of early carcinoma of the stomach—i.e., operable cases. If one included the cases where clinically there was no doubt as to the diagnosis, which had been confirmed by operation or autopsy, the percentage would be considerably raised. In all the cases the tests for occult blood in the stools had been made and proved to be positive on three successive days in all the 70 per cent. correct cases. A number of cases with malignant disease where the stomach was *not* involved had shown normal values or even hyperchlorhydria in test-meal analyses. There was, however, one type of test-meal where the mineral chlorides were raised to the same extent as in carcinoma of the stomach; this occurred when for any reason there was regurgitation of intestinal contents into the stomach. There was thus a definite neutralisation of some of the hydrochloric acid with the production of sodium chloride. This neutralisation affected the physiologically active hydrochloric acid, with the result that this was diminished, and the inorganic chlorides and total chlorides increased. In carcinoma of the stomach there was no such neutralisation since there was very little hydrochloric acid secreted, and further ferments were markedly diminished, or entirely absent, whereas in regurgitation test-meals they were unaffected. The necessary stimulus to produce regurgitation was provided in every case by an excessive secretion of hydrochloric acid. These regurgitation test-meals had been found in chronic gastric ulcer, duodenal ulcer, gall-stones, and appendicular gastralgia, and also after gastro-enterostomy. It was a natural mechanism to produce neutralisation of the excess of hydrochloric acid in the stomach. The fractional test-meal method failed to detect regurgitation test-meals. Regurgitation of bile at the end of a meal was of normal occurrence, but the appearance of bile was not necessary since by direct observation a clear watery alkaline fluid had been seen to regurgitate into the stomach. This type of regurgitation occurring before the end of one hour after the meal had been consumed was, in his opinion, definitely pathological. The fractional test-meal in its present form was limited in value in that the material obtained was insufficient for a complete analysis of each fraction, and the estimation of the mineral chlorides was as important as the estimation of total acidity and free hydrochloric acid. The combination of the one-hour test-meal with frequent examination of the stools for blood provided a considerable amount of information in the early diagnosis of carcinoma of the stomach—which was likely to remain the most important function of test-meal analyses.

Dr. GEORGE GRAHAM said that he thought a good case had been made out for the use of the continuous test-meal, but the chemical methods employed were not the best available. It was clearly impossible to make a complete chemical analysis every 15 minutes, but it should be possible to do so once in the course of the experiment, preferably at the end of one hour. He understood from Mr. Ryffel that it would be possible to draw off 15–20 c.cm., which should give enough filtered fluid to do a complete analysis of the chlorides by the Prout-Winter method. Mr. Ryffel had not represented his work on the increase of the mineral chlorides in carcinoma quite correctly. The mineral chlorides were usually increased, though not necessarily, but were always greater than the active HCl. This method was not infallible, but, as was shown in the original series of cases and in Dr. Wallis's recent series, it was of great value in the diagnosis of malignant disease. In order to avoid errors due to regurgitation of the contents of the duodenum the test-meal should not be given until the patient's bowels had been thoroughly cleared out. He had recently seen three cases in which the whole character of the chemical analysis had been altered after the bowels had been well opened.

Dr. W. H. WILLCOX was of opinion that the ordinary test-meal, in which a pint of weak tea and toast were given and the gastric contents withdrawn in an hour's time, still retained its value as a method of diagnosis. This meal, from the quantity of liquid available, permitted a much more complete and more accurate analysis than was possible with the small quantities of liquid available with the fractional test-meal. Dr. Willcox advocated the determination of the active hydrochloric acid by the modified silver nitrate titration described by him in THE LANCET in June, 1905, since this gave results more accurate chemically than methods depending on the change of colour of aniline dye indicators such as were employed in the analysis of fractional test-meals. In his experience the presence of organic acids in considerable quantity, as was the case in growths of the pyloric portions of the stomach, materially affected the accuracy of the titrations for HCl with the usual colour indicators. The determination of mineral chlorides as advocated by Dr. Graham was an important part of a gastric analysis and could always be carried out on an ordinary test-meal, but with the fractional meal this was not usually possible. Dr. Willcox emphasised the importance of determining the ferment activity of the gastric contents, and called attention to the method which he described in THE LANCET in July, 1908. By this method the rennin activity could be determined quickly and accurately, and the process was one which had been in constant routine use on all the test-meals analysed in the pathological chemistry laboratories at St. Mary's Hospital for the last 12 years. It had given uniformly reliable results and was a very useful practical method. He had pointed out in 1908 that the quantitative determination of the rennin present in the gastric contents probably gave a fairly accurate representation of the pepsin present. In cases of gastric and duodenal ulcer and hyperchlorhydria a high figure was given for the rennin activity, while in gastric carcinoma and hypochlorhydria the rennin activity was low, and in achylia gastrica the rennin ferment was absent. Dr. Willcox considered

that the fractional test-meal gave valuable evidence, and the type of curve given by the free HCl present formed a useful help to diagnosis in such conditions as gastric and duodenal ulcer, gastric carcinoma, and achylia gastrica. Also the fractional test-meal enabled a valuable determination to be made of the time of emptying of the stomach, which was not given by the ordinary test-meal. He was of opinion that the fractional test-meal should supplement and not replace the ordinary test-meal. The combination of the two methods gave very important chemical information as regards the gastric function.

LIVERPOOL MEDICAL INSTITUTION.

AT the last meeting of the Pathological Section of this society, Dr. J. E. GEMMELL, the President, in the chair, the discussion was resumed of Professor J. G. ADAMI'S paper on

The Pathology of Influenza.[1]

Dr. R. J. M. BUCHANAN, who opened the discussion, said he could only speak on the subject from the clinical side. In the epidemic of 1918 about 450 cases of the disease from among the U.S.A. troops were admitted to three of our auxiliary hospitals, to which he was appointed consulting physician. The outbreak was serious. It soon became evident that the cases could be divided clinically into four groups: (1) the mild catarrhal type; (2) the pneumonic type; (3) cases with physical signs of bronchiolitis; (4) cases of profound toxæmia with little or no respiratory phenomena in whom coma-vigil was the rule, and who with few exceptions died. Among the complications profuse epistaxis was not uncommon. Empyema was not common, but occurred in prolonged cases. One double empyema, one pneumothorax, and cases of pleurisy, suppurative pericarditis, and peritonitis occurred. A few developed otitis media and some mastoid abscess. Subcutaneous abscesses were not uncommon. When arthritis occurred it was generally in the knee. One patient had pelvic abscess which burst through the bowel shortly before death. Symptoms of meningitis were present in a few cases, and he understood that in such the pneumococcus is present in the cerebro-spinal fluid. He saw one case of fatal pneumococcal spinal meningitis in which the body was absolutely rigid as in rigor mortis, with marked delirium and no pulmonary infection. The blood in life contained the organism. His clinical observations of the recent epidemic led him to the conclusion that we had to deal with a triple or multiple infection process. Dr. Buchanan then briefly described the history of the previous epidemics, and showed that the same division into groups was seen, even in the 1889–92 epidemics. He thought this similarity in classification in different epidemics supported the theory of multiple infection, and in support of this he quoted Washbourn, Lister, Gochez, Gillespie, Cole, and Sutton and Sevier.

Professor ERNEST GLYNN referred to 7 children in one family who contracted influenza early in September, 1918. Four died, 3 with very marked tracheitis; pneumococci and bacilli of the influenza group were demonstrated. He quoted some experiences of the influenza epidemic among the American soldiers in Liverpool; direct films from the sputa of 13 cases showed pneumococci and influenza group in 5, influenza group in 2; blood cultures from 70 cases showed pneumococci in 9, pneumococci and streptococci in 2, influenza group in 2; 22 post-influenza empyemas showed pneumococci in 9, streptococci in 8, pneumococci and streptococci in 1, pneumococci and *Staphylococcus aureus* in 2, streptococci group in 1, while one was sterile. He quoted several cases in which the bacilli of the influenza group were numerous in the trachea and bronchi, but pneumococci scanty, whereas in the pneumonic lung alveoli the reverse obtained. A mixed influenzal pneumococcal and streptococcal vaccine which he had made was extensively used for treatment of the American troops, but he had no reliable data as to its value. As "influenzal pneumonia" was often accompanied by septicæmia, vaccines seemed inadvisable on theoretical grounds.

Dr. E. CRONIN LOWE, by means of a series of lantern slides and sections, pointed out the well-recognised importance of the post-nasal space and accessory sinuses as the focus of primary infection in influenza. He showed that in the simple pyrexial cases the intensely influenzal mucosa of those areas gave rise to frequent epistaxis, &c., and was associated with a toxæmia. In other cases which developed later the severe fulminating type of influenza, the condition was due to a generalised bacteriæmia, originating in the infection of the congested pharyngeal veins and extravasated blood in the submucosa of this region and carried probably often in the form of minute infective emboli. These, travelling by the normal anatomical route, would be arrested in the terminal arterioles of the pulmonary artery, which are situated around the terminal bronchioles. In this way he considered, as Dr. Herbert French had suggested elsewhere, the rapid and earliest lung infection took place, giving rise to a peri-bronchiolitis of hæmic origin, which would account for the pathological appearances so constantly found present in these more rapidly fatal cases. The protective functions of the ciliated lining epithelium having been thus damaged, a later infection by direct extension from the upper air-passages along the bronchial tract might ensue. He pointed out that from this point of view the three important factors in treatment lay in the promotion of hygiene of the post-nasal space, prophylactic vaccination against the three organisms principally concerned—namely, *B. influenzæ*, streptococci, and pneumococci—while in the actual treatment of the septicæmic type of case the prompt, early, and adequate administration of curative streptococci or pneumococcal sera should from the biological point of view be the right treatment; generally 50 to 100 c.cm. of serum given intravenously and twice daily would be required.

Dr. A. GORDON GULLAN said that when on service with the B.E.F. in the spring of 1916 he observed an outbreak of influenza of a mild type without any respiratory complications, which was chiefly classified as P.U.O. or trench fever. Early in 1917 he noted cases of influenza complicated with pneumonia and other respiratory affections, but in 1918, when he was officer in charge of the Military Hospital, Gibraltar, two severe outbreaks of influenza occurred; the first, in June, was in several cases accompanied by respiratory complications, but in no instance ending fatally; the second, in October, was much more virulent and patients showed signs of marked toxæmia. In this latter epidemic the respiratory type was much more prevalent, especially in the form of lobar pneumonia, often accompanied by general bronchitis and most severe cyanosis; in 355 cases 77 developed pulmonary complications, and of these 18 terminated fatally. It was noticeable that no soldier affected in June contracted the disease in October. In the sputa which were examined the bacillus of influenza and the pneumococcus were found. Dr. Gullan concluded by saying that Professor Adami's admirable review would stimulate clinicians to further pathological investigation.

Professor J. M. BEATTIE also spoke, and Professor ADAMI replied.

[1] THE LANCET, Jan. 1st, p. 27.

LIVERPOOL MEDICAL INSTITUTION AND MANCHESTER MEDICAL SOCIETY.

A JOINT meeting of these societies was held on March 3rd to which Professor E. S. REYNOLDS, Sir WILLIAM THORBURN, Sir WILLIAM MILLIGAN, and Dr. A. E. BARCLAY made interesting communications. These will be published in our next issue.

MIDDLESEX HOSPITAL MEDICAL SOCIETY.—The annual conversazione will be held at the hospital on Monday, March 21st, at 8.30 P.M., when Dr. Charles Singer will deliver an address entitled "Medicine in Ancient Greece."

LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION.

A MEETING of this association was held on March 8th at the Elizabeth Garrett Anderson Hospital, with Mrs. FLEMMING, M.D., in the chair, when Dr. M. ESTHER HARDING read a paper on

The Circulation During and After Acute Infection.

Dr. Harding pointed out that the duty of the circulation is to serve metabolism in all parts of the body. The problem of the effects of acute infection on the circulation therefore involves a discussion of the condition not only of the heart and myocardium, but also of the blood-vessels, the nervous mechanism, central or peripheral, controlling the blood-vessels, and of the blood. She maintained that all these four great divisions of the circulatory mechanism are affected, primarily or secondarily, in acute infections. Her data were gathered chiefly from a study of diphtheria and influenza, but probably similar effects could be demonstrated in many other diseases—e.g., acute rheumatism, typhoid, pneumonia, cholera, &c.

Diphtheria was particularly suitable for studying circulatory changes, because in this disease they are well marked and the complication of pyrexia is practically absent. In severe cases there is a gradual fall of blood pressure, which in the worst cases proceeds up to death. Brodie reproduced this condition experimentally and showed that the fall of systolic pressure was not due to heart failure and that the vaso-motor mechanism was also intact. By a study of the alteration in diastolic as well as in systolic pressure Dr. Harding had been able to show that during the early toxæmic stage of diphtheria, while the systolic pressure falls steadily the diastolic pressure is much more stationary—i.e., the output per heart beat is reduced, but the peripheral vessels maintain their tone. The ratio between systolic, diastolic, and pulse pressure varying from the normal 3 : 2 : 1 to a ratio even of 6 : 5 : 1. These clinical observations had been confirmed experimentally.

Observations on the specific gravity of the blood in toxæmic cases further showed that the slight general œdema, so-called "lymph-logging," was accompanied by definite increase in the specific gravity of the blood due to the actual loss of part of the fluid content which leads to a decreased volume of the blood in circulation. This fact suggested that the circulatory failure of diphtheria might be, in part at least, due to a condition resembling the oligæmic phenomenon described by Zandell Henderson in cases of shock. Dr. Harding described recent experimental work which confirmed this observation.

The indication for *treatment* seemed to be to attempt to dilute the blood and increase the volume in circulation. Saline injections, while temporarily improving the condition, had been found of no lasting value. Experiments with injections of gum saline, hypertonic saline, and with fresh citrated blood had been performed, and with the latter injection good results had been obtained.

Effects of Infection on the Heart.

In discussing the effects of infection on the heart Dr. Harding gave details of the study of the size, rate, rhythm, and quality of heart sounds. Recognisable dilatation of the heart was rare in fever hospitals, probably because of the complete rest enjoined on the patient, but very rapid dilatation might occur where over-exertion was allowed at too early a stage of convalescence. Quickening of the heart, related either to myocardial insufficiency or to low peripheral blood pressure, occurred during most fevers. Slowing of the heart was the rule in certain fevers—e.g., typhoid; it also occurred often in severe diphtheria, and was usually of grave significance. Of abnormal rhythms, curtailed diastole frequently accompanied increased rate. Sinus arrhythmia tended to disappear as the heart quickened. Sir James Mackenzie taught that its reappearance might be taken as a sign of the return to normal, but Dr. Harding found an irregularity which she took to be sinus arrhythmia practically always present in cases of diphtheria with slowed heart-rate. However, Sir James Mackenzie, to whom she had submitted tracings of the condition, suggested that the condition was not of true sinus type and might be peculiar to diphtheria. Extra-systoles not in themselves dangerous were yet a sign of myocardial trouble if they occurred with great frequency. Heart-block and auricular fibrillation were sometimes seen and were more serious. Heart sounds tested with differential stethoscope showed in the early stages of infection, progressive diminution of audibility of first, and progressive accentuation of the second. The pitch of the second sound also rose from day to day during infections. Taking the normal musical interval for a man to be a minor third, for a woman a major third, and for a child a fourth, Dr. Harding found that the interval might alter to a sixth or even a seventh during circulatory impairment.

The late effects of infection might be grouped under two headings: (*a*) Myocardial weakness; (*b*) weakness of peripheral circulation which might, or might not, be vasomotor in origin. The differential diagnosis between the two types was important from the point of view of treatment. In both the patient complained of feeling slack. In both there was some breathlessness, palpitation, fatigue after mental exertion, and irritability; in both there was an excitable heart, shortened diastole, and poor exercise response.

In the myocardial group the patient was at his best in the mornings after a night's rest, and got more and more tired as the day went on. In the peripheral weakness group, the patient was tired in the early part of the day, but improved with exercise. The myocardial group were breathless all the time and the breathlessness was of the anoxæmic type with curtailed expiratory pause. The peripheral type were only breathless after exertion. In the myocardial group the patient nearly always complained of some pain and tenderness in varying amount. Cold seemed to shrivel up patients of this type, whereas a patient with peripheral weakness often benefited when cold is applied to the body surface. In the myocardial group prolonged rest was necessary, bromides and digitalis being very useful. Strychnine, cold baths, and adrenalin by the mouth first thing in the morning were often very helpful in the second type.

It was important in dealing with long-continued debility following acute infection, not to forget the possibility of functional weakness dependent on a psychological cause. When a patient's resistance was lowered as the result of infection his psychological repressions were rendered less complete, so that his repressed complexes were given a chance to make themselves unpleasantly felt. This condition could be recognised in the relation between overwork or infection and a nervous breakdown. Here rest and seclusion, with freedom from worry, would often result in a return to health, but there were many cases where the disability was unnecessarily prolonged and where a little psychological treatment would put the patient on the road to recovery.

SHEFFIELD MEDICO-CHIRURGICAL SOCIETY.

A MEETING of this society was held on March 3rd, Dr. F. J. SADLER, the President, in the chair, when Sir D'ARCY POWER read a paper on

The Palliative Treatment of Aneurysms by Wiring.

He showed Colt's apparatus for the rapid and aseptic introduction of wire into aneurysms and pointed out various points of practical importance in its use. He then gave details of the more recent cases of thoracic and abdominal aneurysm in which he had employed this method of treatment, and the subsequent history of the patients whose cases had been recorded in the Proceedings of the Royal Society of Medicine in 1912. One of the cases was illustrated by a very complete series of X ray photographs showing the wires in position and the changes undergone by the aneurysm during a period of two years. He arrived at the general conclusion that in the majority of cases there was evidence of cure, as the patients were alive and at work 10 and more years after the wire had been introduced. He also appended an interesting table of cases compiled by Mr. G. H. Colt, showing the duration of life from the first recorded symptoms to the time of death in 133 men and 8 women suffering from thoracic or abdominal aneurysms.

The PRESIDENT, Professor A. J. HALL, Professor A. M. CONNELL, Dr. A. E. BARNES, and others took part in the discussion which followed.

QUEEN'S HOSPITAL, BIRMINGHAM.—**The accounts** for 1920 show a deficit of £20,499, and the committee in their report make a strong appeal for increased support. The income amounted to £24,228, being an increase of £831 on that of the previous year. The expenditure was £44,727, being £7843 more than for 1919. The average cost per bed occupied was £191 9*s.* 10*d.*, compared with £153 15*s.* 7*d.* in 1919, and with £84 19*s.* 5*d.* in the last pre-war year. The most urgent needs of the hospital are an additional sum of £10,000 per annum to meet the increased working expenses, a new medical out-patient department, and an up-to-date operating theatre. Owing to the large debt the hospital was compelled to allocate the legacies received to the current account instead of investing them, unless they were earmarked for a specific purpose. The number of in-patients was 3235, an increase of 317 on the number in 1919. There were 20,868 out-patients and casualties compared with 21,354 in 1919. In the X ray department there were 2908 new patients and 2164 treatments. An electro-cardiograph was installed in October, the cost being defrayed by Mr. and Mrs. Lionel Spiers as an additional memorial to their son, Lieutenant Archibald Spiers.

Reviews and Notices of Books.

PSYCHOLOGY AND PSYCHOTHERAPY.

By WILLIAM BROWN, M.A., M.D. Oxon., D.Sc. Lond., Reader in Psychology in the University of London, Clinical Assistant in Neurology, King's College Hospital, &c. With a Foreword by W. ALDREN TURNER, C.B., M.D. London: Edward Arnold. 1921. Pp. 196. 8s. 6d.

INTO a small volume of some 200 pages Dr. William Brown has packed as much sound psychological and psychotherapeutic doctrine as is to be found in many larger volumes of a more pretentious nature. He has given us less a mere clinical description of the familiar phenomena of the psychoneuroses than an exposition of the underlying psychological mechanisms and of the principles of a successful treatment. Accepting the method of psycho-analysis in the investigation and treatment of the psychoneuroses, the author is unable to subscribe to Freud's views in their entirety, and indicates in a few closely argued sections the lines of divergence he is compelled to take. Further, he shows how vague and incomplete is Freud's theory of the emotions in contrast with those associated with the names of Ribot, Shand, and McDougall. It is gratifying to note that Dr. Brown is fully aware of the insufficiency of a solely psychological explanation of the phenomena of hysteria; its peculiar physiological disorders cannot be ignored in any causal explanation that claims completeness; yet it is precisely these disorders which the psychologist tacitly neglects. Absence of the plantar reflex in a case of hysterical paraplegia is as integral a symptom as amnesia, but while the latter is accounted for by Freudian theory the former remains unexplained. It is only fair to observe that Freud himself is well aware of the lacunæ in his hypothesis; and Dr. Brown has done useful service in directing attention again to this matter, for it is one which is too frequently passed by. In the chapters on psychotherapy the reader will find succinct recapitulations of the methods developed by Dr. Brown, and already published in various medical journals; and in a last section is a brief yet lucid and critical re-examination of the theories of the interaction of mind and brain, to no one of which, however, does the author seem to commit himself.

Amid all sorts and conditions of modern psychological and psychotherapeutic monographs and text-books this unambitious volume of Dr. Brown's takes rank with the best.

MENTAL TESTS.

1. *Standard Method of Testing Juvenile Mentality by the Binet-Simon Scale.* By NORBERT J. MELVILLE, Assistant Director, Mental Hygiene Committee, Public Charities Association of Pennsylvania. London and Philadelphia: J. B. Lippincott Company. 1921. Pp. 162. 12s. 6d.

2. *The Intelligence of School Children.* By LEWIS M. TERMAN, Professor of Education, Leland Stanford Junior University. London: Harrap and Co. 1921. Pp. 317. 8s. 6d.

1. THIS book does for the Binet-Simon scale what Professor Terman's book on the "Measurement of Intelligence" did for the Stanford revision of that scale; it provides definitely standardised methods of stating the problems to the subject and of scoring results. In one respect the standardisation is more complete, for it extends also to the order in which the tests are presented. This order, it must be stated, is somewhat complicated, and possibly equally accurate results might be obtained by a simpler procedure. In the first enthusiasm for intelligence tests the limitations of the Binet scale as indicative of a child's mentality were sometimes ignored. Dr. Melville definitely recognises that the scale gives no reliable criterion of a child's innate intelligence; it shows only "how much an individual has profited from some typical forms of experience and training which the majority of children in civilised countries undergo not only in school but also in the home and on the playground." He insists, further, that the Binet findings must be "corroborated by a thorough psychobiological study of the case," laying stress on the fact that emotional attitude and factors of character, will, and even of attention are quite inadequately, if at all, measured by this scale. Complete directions are given for the carrying out of each test and for recording its results. The pictures and other diagrams required are embodied in the volume itself instead of on separate cards—an arrangement not without disadvantages. Of special value to English readers is the incorporation in an appendix of the complete set of Porteous maze tests which, testing as they do the foresight, the capacity to plan, the practical judgment, and concentration of the child, supply a marked lack of the Binet scale.

In regard to one cardinal point the book provokes criticism. There is fairly general agreement that many of the Binet tests are misplaced in the scale, some by as much as two years. Many revisions have been published—Goddard's, Kussmaul's, Bobertag's, the Yerkes-Bridge scale (which discarded age-tests), and the Stanford revision—but the author of this book frankly prefers to return to the original scale, with all its faults. Admitting that it was based by Binet on the examination of the poorer children in the Paris schools, he maintains that it only requires correction tables for race and social status to make it available for general use, with the possibility of comparable results. From a scientific point of view one cannot but feel that it is desirable to adopt as a basis a scale of more universal validity, and not one based on children of one race and of one social grade. With so many psychologists of different countries at work on these problems the compilation of such a scale should be possible in the early future.

2. Professor Terman's new book is an analysis of the examination by means of the Stanford revision of the Binet scale of children in various grades of American schools, with the double purpose of demonstrating the great differences of capacity existing among children in each grade, and of indicating better methods than at present exist for the classification in schools of exceptional children. It is therefore primarily a book for teachers, but is also of considerable interest to school medical officers who are using the Stanford scale in their examinations of backward and defective children. Of more general biological significance is Professor Terman's claim that, while the social and educational environment of a child contributes to his success or failure with the tests, yet the chief factor is the original endowment, a claim to some extent supported by the fact that the intelligence quotient in children removed to a superior environment was not found to increase in value. Another investigation of medical interest showed that over a third of the cases gave a reduced intelligence quotient after the removal of tonsils and adenoids, while the increase of the others averaged only two points. Both results, however, must be received with caution, for the number of cases tested was too small to justify any general conclusion.

THE OPERATIVE STORY OF GOITRE.

By WILLIAM S. HALSTED. The Johns Hopkins Hospital Reports, Baltimore. Vol. XIX. Pp. 71.

HOW many surgeons watching or even performing the simple operation with practically no operative mortality that removal of an adenoma of the thyroid has now become realise that scarcely more than a generation ago this operation was of so great a severity that it was almost considered unjustifiable. The whole history of this change has been most ably traced by Professor Halsted, who has lived and worked at the subject through the whole of this period. The modesty which characterises all his writings allows but little evidence in this monograph of the fact that he has contributed more than any living surgeon to the success which is obtained from the modern operations. So much credit is given to other surgeons

that it may hardly be realised that the author is an active participator rather than an historian. The story has been most carefully written, and an enormous amount of trouble must have been taken in searching the earlier literature. Professor Halsted gives accounts of the first more or less experimental operations, and the inclusion of long abstracts from the original papers adds greatly to the interest of the survey, besides showing clearly what wonderful progress has been made in this and other branches of surgery. Even up to 1860–70 any operation upon the thyroid was apparently condemned by the majority of surgeons as a dangerous and unjustifiable procedure. From this time onwards progress was rapid, but in the early days great difficulty was experienced owing to the danger of hæmorrhage. Hence a partial thyroidectomy was regarded as an almost fatal procedure, most frequently the whole thyroid was removed. It was not until several years had elapsed that it was gradually realised that removal of the whole gland was certain to be followed by deleterious effects. Step by step the slow increase in knowledge and the gradual improvement in the operative results is traced, long and careful accounts being given of the work of such men as Kocher, Billroth, Mikulicz, and many others. Real progress dates, however, from about 1879, when artery forceps were introduced and surgeons were thereby enabled to obtain an almost certain control of hæmorrhage. It is difficult to realise that the introduction of these instruments ranks almost with the discovery of anæsthesia and antiseptics in surgical importance, for the three grave dangers to operation were shock, collapse, and sepsis. If anæsthetics overcame the shock by relieving pain and antiseptics overcame sepsis, so also did the artery forceps, by giving a sure means of controlling hæmorrhage, prevent fatal collapse.

The monograph terminates with an account of the author's operation—firstly for partial thyroidectomy and secondly for the enucleation of adenomata; the steps of each operation are beautifully illustrated. Professor Halsted's work must be regarded as one of the classics of surgical literature, which it is essential for every surgeon to read if he habitually operates upon the thyroid gland. Like the rest of Professor Halsted's contributions to medical literature, it is so interesting that the attention of the reader is engaged from beginning to end, and although the bibliography is complete and the abstracts are many there is no portion which can be regarded as dry or irrelevant.

FOR THE LIMBLESS.

A Handbook compiled by Captain H. H. C. BAIRD, D.S.O. The Disabled Society, 48, Grosvenor-square, London, W. 6*d*.

THE aims and objects of the Disabled Society are certainly worthy of public support, being, briefly, the collection and dissemination of knowledge useful to the limbless. The pamphlet now issued is described as a skeleton edition only, later to be amplified in the light of the actual experience of the disabled; in addition, illustrated home exercises for the guidance of wearers of artificial arms and legs are promised in the next edition. Such information should prove of value to the limbless, and we hope that those who for one cause or another do not wear an artificial limb will not be forgotten, as for them exercises are of the greatest importance.

We regret to see no medical name on the executive committee of this society, though there are honorary consultants, and the council includes distinguished members of the profession. The next edition of the Handbook might well receive some attention from one of these, because among some most useful tips and hints by legless men there is one at least of doubtful value. The limbless are advised to treat their stumps with sea-water, methylated spirit, alum and water, and no guidance is afforded as to the efficacy of these washes. The treatment of a stump is in principle the same as that of any other surface exposed to continued pressure, such as the back of a patient suffering from enteric fever. Essentially it must be protected from chafing—that is, in the case of a stump, the artificial limb must fit. Good treatment for any areas subjected to unavoidable pressure is gentle rubbing with the soapy hand in order (*a*) to make the part clean and (*b*) to promote circulation. Only after this should the skin be thoroughly dried to discourage bacterial growth, and only with this object should methylated spirit be used exclusively as a volatile drying lotion. The old idea of hardening the skin instead of keeping it soft and pliable gives results as pernicious to the stump as to the back, or to the nipple of a suckling woman. But on the whole the hints will be found useful.

The information as to the help to which limbless service men are entitled from various Government departments is clearly set out. One further point might be worthy of the consideration of the society. There must be many service men who have not lost their limbs, but have retained practically useless ones. If these could be brought into touch with the society they might also receive and impart much valuable information.

PRACTICAL BACTERIOLOGY.

Blood Work and Animal Parasitology, including Bacteriological Keys, Zoological Tables, and Explanatory Clinical Notes. Sixth edition. By E. R. STITT, M.D., LL.D. London: H. K. Lewis and Co., Ltd. 1921. Pp. 633. 20*s*.

THIS is the sixth edition of the best known work of its kind. The author set himself the task of presenting as much useful information as could possibly be given in the space allowed. All who have ever used the book agree that he succeeded, and all who during the war were engaged in bacteriological work in improvised laboratories far away from libraries were, and are, full of its praise. Every page contains facts and descriptions of methods; even the covers are used for tables. The purchase of this volume will be a useful investment to anyone who wishes to save the time so often wasted in looking up an established fact, a description of a parasite, or an account of a method. He will find in Dr. Stitt's book most of the information he requires.

DISEASES OF CHILDREN.

Aids to the Diagnosis and Treatment of Diseases of Children. Fifth edition. By JOHN MCCAW, M.D. R.U.I., L.R.C.P. Edin. London: Baillière, Tindall, and Cox. 1920. Pp. xii. + 404. 6*s*.

LIKE general medicine, the study of disease in children does not lend itself readily to compression into tablet form, for it is not a limited and clearly circumscribed speciality, but general medicine confined to a particular period of life. The author of this volume of the Student's Aid Series has therefore attempted a difficult task, with what degree of success is demonstrated by the fact that a fifth edition has already been called for. Within its modest limits and at a very moderate cost a surprising amount of information is supplied. To some it may appear to be too concentrated to be easily assimilated, but it is clear that the many have found it palatable. The present edition for the most part has been brought well up to date. We note, however, that no mention is made of the "vitamine" theory of the ætiology of rickets, for which, though still contentious, there is much to be said. On the other hand, the merely speculative view that hypertrophic stenosis of the pylorus is due to hyperadrenalism is given considerable prominence. The statements that "during the first month the child should be nursed every two hours during the day and twice during the night," and that "in infants over a month old one night nursing is sufficient" belong, we think, to an earlier period and mar an otherwise valuable description of breast-feeding. In the section on artificial feeding of infants exception may be taken to the eulogistic mention of a particular kind of dried milk to the exclusion of others, especially as it is not stated that it is a dried milk with modifications. Under the diagnosis of intussusception the absence of a

reference to rectal examination or to examination under an anæsthetic constitutes, we think, a serious practical omission. But when all is said it remains true that the author has overcome the initial difficulties of his project with marked ability, and there are few flaws in his book. The title is somewhat misleading, for a good deal more is included than diagnosis and treatment.

BLOOD PICTURES.

Second edition. By CECIL PRICE-JONES, M.B. Lond. Bristol: John Wright and Sons, Ltd. 1920. Pp. 66. 6*s*. 6*d*.

THE second edition of this handbook differs scarcely at all from the first, and the author has wisely refrained from any attempt at elaboration. As it stands the book is a useful guide to the general practitioner, setting forth briefly and lucidly the information which he may fairly expect to obtain from an ordinary examination of the blood. Inasmuch as the general practitioner without previous training is scarcely likely to make the blood examinations himself, the short section on technique might have been omitted. In any case we would suggest that all save experts in constant practice would do well to use separate mixing pipettes for the red and white cells; also that a more viscid diluent than normal saline is easier to work with and gives more reliable results.

FIRST AID.

First Aid to the Injured and Sick. An Advanced Ambulance Handbook. Eleventh edition, revised. By F. J. WARWICK, M.B. Cantab., M.R.C.S., and A. C. TUNSTALL, M.D., F.R.C.S., L.R.C.P. Edin. Bristol: John Wright and Sons, Ltd.; London: Simpkin, Marshall, Hamilton, Kent, and Co. 1920. Pp. 246. 2*s*. 6*d*.

THAT this little book has gone through 11 editions in 20 years is sufficient testimony to its popularity, while the fact that its authors are experienced lecturers and examiners to the St. John Ambulance Association ensures its utility as a text-book. The new edition has been thoroughly revised, some of the illustrations have been improved, and a picture of the diaphragm viewed from the under surface has been added.

PSYCHIATRY.

1. *Psychiatrie*. Tome I.: Traité de Pathologie Médicale et de Thérapeutique Appliquée. Publié sous la direction de EMILE SERGENT, L. RIBADEAU-DUMAS, et L. BABONNEIX. Tomes VII. et VIII.: Par RITTI, JUQUELIER, J. DURAND, MIGUARD, SÉRIEUX, CAPGRAS, LOGRE, BRISSOT, et MALLET. Paris: A. Maloine et Fils. 1921. Pp. 425. Fr.25.

2. *Manual of Psychiatry*. Fifth edition. By AARON J. ROSANOFF, M.D. New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd. 1920. Pp. 634. 22*s*.

1. THIS volume of a monumental treatise forms the first of two devoted to psychiatry, and is of a high order of merit, and worthy of the eminence of its various contributors. It is remarkable to note the critical attitude adopted with regard both to psycho-analytic theories and procedures. In the matter of hysteria the Freudian methods are held to have enriched and systematised one of the least happy results of the Salpêtrière school, the culture of hysteria. M. Durand, in the chapter on melancholia, advances a novel idea as to its ætiology. The author adopts Bergson's views as to the *élan* of consciousness, and ascribes the symptoms of melancholia to its enfeeblement and arrest. The whole book illustrates the position of a psychology not as yet influenced by the analytic movement, but based nevertheless upon very solid acquisitions.

2. The French "Manuel de Psychiatrie" of J. Rogues de Fursac has grown considerably since it first appeared in English in 1905, and has been adapted to meet the special demands of American students. The present edition has been strengthened by a chapter very successfully epitomising the theory and practice of psycho-analysis and by 48 pages of frequency tables, to be used in the free association test. There is also a useful appendix, containing intelligence tests graduated for the examination of children aged 3 and subsequent ages up to adult life. One of the most remarkable chapters is that on hysteria, for the most part as Dr. Rosanoff has observed it in a U.S. military hospital. He maintains "that hysterical manifestations can be actuated by motives other than sexual," and defines the hysterical personality as characterised by a total lack of pure or æsthetic morality; that it is at best actuated by prudent morality, and in its typical manifestations entirely by imposed morality. He places the hysterical individual in close relation to the criminal with a certain difference. "Most hysterics are characterised by a trait which is foreign to many criminals—indolence." Such a view is at least robust, and qualifies the rather mawkish attitude which prevails at present towards this affection.

THE STORY OF MY LIFE.

BY W. D. SPANTON, F.R.C.S. Edited by ERIC E. YOUNG, M.S. Lond. London: The Connoisseur 1920. Pp. 403.

AUTOBIOGRAPHIES are many and of varying excellence and importance. Some rank among the treasures of literature and the great documents of human life, as, for instance, St. Augustine's Confessions. Some are merely records of prostituted talents and of how easily a plausible adventurer can take in his fellows, as exhibited in Casanova's Memoirs. Many, including the majority of those which have appeared of recent years, are of no value from the point of view of literature or of anything else; and some, like the work before us, are just a simple tale of an ordinary life lived by a man or woman who has striven to do his or her duty in whatever position of life he or she may be. Mr. Spanton has been a well-known practitioner in the Midlands for many years, and has succeeded in his profession, and done eminently useful work in not purely professional fields. He is best known, perhaps, to the medical profession in general by his having invented an instrument something like a corkscrew for the radical cure of hernia, but the operation which he devised is now practically obsolete.

Mr. Spanton gives us an interesting picture of his early days as an assistant both in the provinces and in London. His memory has played him false in one place, where he says on p. 9 that he met Douglas Jerrold, for he tells us that he was born in 1840 and came to London when he was aged 19, while Douglas Jerrold died in 1857. Spanton completed his medical education at the Middlesex Hospital and after spending some time at the Sheffield Infirmary settled in Hanley in 1866, where he remained until retirement in 1911. The book is an account of a professional life and recalls nothing of any particular importance. In one place Mr. Spanton has forgotten the rules of reticence which should be observed by every medical man, for he goes into considerable detail of various events happening to a certain family, which events were only learned by him in the exercise of his professional duties, and we must express surprise that his editor, Dr. Young, allowed the passages in question to appear in print. Also Dr. Young should have cleared up the following statement (p. 13), which is incomprehensible:—

> "Dr. Morgan mentioned in one of his lectures on physiology that he had observed that, contrary to the usual teaching of that day, during the heart's systole it became shortened. On the contrary, it became elongated. And ..... I set to work to watch the heart's action in frogs ..... and my rather rudimentary observations served to confirm his view."

We can congratulate Mr. Spanton on gaining the confidence and affection of his patients, and one proof of this is given by a poem written in gratitude to him when he was resident surgeon at the old North Staffordshire Infirmary. It will be found on pp. 216–218.

Not only Mr. Spanton is praised, but also his three resident pupils, as follows:—

> "Whether in medical or surgical art,
> May these pupils far excel;
> May Israel's Great Physician's eye
> Round these young gentlemen watch,
> And may it yet be said of them,
> Death nearly met his match."

There is a great deal more of the poem, which is an altogether delightful composition and a tribute which any man might be proud to receive.

The last hundred pages of the book are mainly made up of records of holiday voyages with which Mr. Spanton wisely recruited his activities, both mental and bodily, during his years of practice. He now lives in retirement at Hastings, and we wish him many more years of restful existence.

JOURNALS.

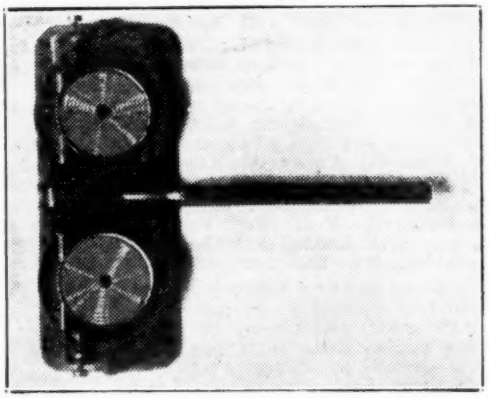
Proceedings of the Royal Society of Medicine, February, 1921. In Dr. Arnold Chaplin's communication to the Section of Epidemiology and Public Health are some interesting statistics of illness and mortality in the Merchant Service, the outcome of his 16 years' experience with shipping companies trading to the East. He found the sick-rate to be 1 in 300. [In the Royal Navy the sick-rate for 1913 was 7 for 300; it is obvious that the statistics are gathered on a different system.] According to Dr. Chaplin, the total mortality stated by the Board of Trade for 1912 was 3·5 per 1000 amongst some 200,000 white seamen, but 5·4 per 1000 amongst the 45,000 lascars; whereas his own experience in the Eastern trade gives 2·6 per 1000 white sailors, and 4·2 per 1000 lascars. The most dangerous disease was pneumonia, the death-rate being 0·3 per 1000 Europeans, 0·8 per 1000 natives. Pulmonary tuberculosis also had a serious mortality, and "all climates appear to favour this complaint in equal degree"; the death-rates are 0·14 per 1000 Europeans, 0·47 per 1000 natives. Dr. Chaplin thinks the spread of the disease is associated with the determination of the native to exclude fresh air from his quarters. He notes that the medical statistics of the Merchant Marine can only be taken as approximate, for it is only ships carrying 100 persons or over which must carry a surgeon, and these form only 600 of the 10,000 ships on the British Register; the statistics of the others depend on the medical knowledge of their captains. To supply these 600 ships with surgeons, about 1000 qualified men are required annually, and their accommodation, Dr. Chaplin says, is, "as a rule, all that can be desired." He proceeds to discuss hospital accommodation, which, in ships carrying third-class passengers, must be provided on the upper passenger deck, and must have 18 square feet for every 50 passengers. No such accommodation is required in other ships, but according to Dr. Chaplin it is nevertheless always provided. The isolation hospital should be aft on a raised deck or over the steering engine-house, and should be built of iron, wood-lined, protected by a double roof, and provided with radiators and plentiful ventilation. The ordinary hospital cabins should be outside cabins, at the end of the alley-way, with the dispensary and surgeon's cabin near by. He hopes a good and safe system may be developed for fumigating ships with hydrocyanic acid; that kills vermin. For ordinary disinfection he uses formalin and permanganate of potassium. In the report of the discussion there are hints of a new Merchant Shipping Bill which will require for each sailor 140 cubic feet of space instead of 120, and 18 square feet of deck instead of 15; hopes were expressed that all questions of the health of seamen should be taken over by the Ministry of Health from the Board of Trade. Several speakers hinted that sailors, so prejudiced against draughts would endure artificially supplied ventilation with warmed air, and General Sir William Macpherson declared that "the prevention of respiratory disease on board ship depended entirely upon the question of ventilation." This has always been urged in THE LANCET. Dr. Major Greenwood drew attention to Sir Gilbert Blane's paper in the Medico-Chirurgical Transactions a hundred years ago, when pneumonia and phthisis were the leading diseases in his statistical returns for the Navy; Blane went on to emphasise the importance of ventilation in ships.

La Médecine.—The first half of the January number of this periodical is devoted to ophthalmology and the second half to oto-rhino-laryngology. Dr. M. Lannois writes on the laryngeal complications of tabes, which are of three kinds—sensory, spasmodic, and paralytic. Of these, the first is unimportant, but the spasmodic affections are of great moment because they occur in the pre-ataxic stage and tend to disappear when the disease has become established; paralyses are more common; energetic treatment with mercury and the novoarsenical preparations often does much good.—Dr. H. Bourgeois discusses tuberculosis of the tonsils; besides miliary tuberculosis and lupus, there are two types, the tuberculous ulcer and latent tuberculosis. The former is rare and is usually secondary to pulmonary phthisis; the latter is found especially in children, the tonsil is normal in appearance, and affection is suspected only from the presence of tuberculous adenitis. The conclusion is that chronic cervical adenitis is not in itself an absolute indication for removal of the tonsils, which should be performed only when they are enlarged or chronically infected.—Dr. L. Dufourmentel is optimistic on the results of treatment of cancer of the œsophagus by radium; he gives a dose of 50 mg. of radium bromide for ten hours, repeated on occasion up to 24 or even 36 hours, and in two-thirds of his cases has obtained immediate diminution of pain with improvement in deglutition and increase of weight, this improvement lasting on an average four or five months; in a third of the cases the improvement was less marked, but very rarely absent. Two patients died of pneumonia respectively, 11 and 9½ months after the application, and two other patients with growths high up in the œsophagus developed, six hours after the application, a kind of paralysis of deglutition with entry of food into the air-passages.—Dr. M. Ramadier has an article on Complete Tonsillectomy interesting to English readers by reason of the light it throws on the totally different practice prevalent in France. Partial removal by morcellement is the operation of choice in those cases where hypertrophy of the tonsils produces mechanical disturbances—that is, chiefly in children—whereas tonsillectomy is preferable in cases where the tonsils are infected, and is usually indicated when the tonsils of adults require operation. The writer prefers local anæsthesia and removal by dissection; the guillotine is not mentioned. There are also articles on the indications for the radical mastoid operation, cancer of the antrum, and several shorter papers. Appended to each is a summary in remarkable English, but too short to be of much value.

New Inventions.

A DOUBLE RETINOSCOPE.

Dr. R. C. Macdonald has brought to our notice a double retinoscope which he has specially designed for refraction work. The shadows are more vivid and the illumination better than with the single instrument, while the operator has the benefit of binocular vision and can correct to an eighth of a dioptre or less any error of his own. Before use the instrument is adjusted to the operator's interpupillary interval for the



distance, say one metre, at which he is working. The instrument would be less suitable for fundus examination where the observer's own interpupillary distance is constantly changing. The retinoscope can be used with the usual illuminants; an electric model is also made, and the instrument can be obtained with either concave or plain mirrors according to choice. It is made by Mr. Robert Whitelaw, surgical instrument maker, Woolmanhill, Aberdeen.

THE *Warm Ether Bomb*, described by Dr. S. R. Wilson and Dr. K. B. Pinson in THE LANCET of Feb. 12th (p. 336), is placed when in use in a bowl of boiling water.

Glaxo is standardised

This fact alone would be sufficient to distinguish Glaxo from ordinary dried milk. Glaxo (Full-Cream) always contains over 25% butter fat and added lactose. The analyses of Glaxo Three-Quarter-Cream (sweetened) and Glaxo Half-Cream (sweetened) are also given below.

Glaxo

STANDARDISED DRIED MILK

Full-Cream ∴ *Three-Quarter-Cream* ∴ *Half-Cream*

GLAXO FULL-CREAM

Fats	26.0
Proteids	22.9
Lactose	42.3
Mineral matter	5.6
Moisture	3.2

GLAXO THREE-QUARTER-CREAM

Fats		20.00
Proteids		26.90
Carbo-hydrates	Lactose 34.3 Cane Sugar 9.7	44.00
Mineral matter		5.90
Moisture		3.20

GLAXO HALF-CREAM

Fats		14.00
Proteids		29.80
Carbo-hydrates	Lactose 36.9 Cane Sugar 9.6	46.50
Mineral matter		6.50
Moisture		3.20

THE GLAXO GAZETTE

A quarterly publication dealing with Dried Milk and kindred subjects is issued by the Glaxo Medical Department for the Medical Profession only, and will be sent post free each quarter on request by

GLAXO (Medical Dept.), 155, GREAT PORTLAND ST., LONDON, W.1.

Proprietors of Glaxo: Joseph Nathan & Co., Ltd., London & New Zealand.

Advances in Ophthalmology.

"Hydrentum"

(Cerat. Hydr. Flav. Ophthalmic, 'A. & H.')

THIS is an improved Pagenstecher's ointment of yellow oxide of mercury. Great care is exercised in the preparation of a very fine and uniformly graded oxide, so that pain and irritation due to the presence of large coarse particles of the medicament do not arise. "Hydrentum" is a perfectly homogeneous cerate which mixes uniformly with the tears. It liquefies at body temperature and spreads uniformly over the ocular and palpebral conjunctiva. It contains 5 per cent. of HgO, a proportion higher than that usually prescribed but permissible in 'Hydrentum' owing to the fine state of sub-division of the mercury oxide.

'Hydrentum' is also supplied in 0·5, 1, 2, 2·5, 3 or 4% strengths.

Complete in 5 gram pots with glass rod for applying the cerate.

"Cuprentum"

THIS preparation contains 5 per cent. of copper citrate in a base miscible with the tissue fluids. The citrate is very easily absorbed—much more so than other salts of the metal. Particularly is it of value in the treatment of diseases of the conjunctiva, trachoma, ulcerations and granulations of the eyelid. Carhart (Med. Rec. 1.540. 1918) records exceedingly good results from its use in Follicular Conjunctivitis.

'Cuprentum' assists the absorption of follicles and granulations, and promotes the healing of ulceration of the eyelids. Its use is also recommended generally in the treatment of foul and indolent ulcers. The ointment should be applied by means of a glass rod, which is carefully cleansed after each application.

In 5 gram pots with glass rod.

Allen & Hanburys Ltd., London.

City House: - Plough Court, 37 Lombard Street, E.C. 3.
West End House: 7 Vere Street, Cavendish Square, W. 1.

[*See also pages 25 & 34.*

THE LANCET.

LONDON: SATURDAY, MARCH 19, 1921.

The Cerebro-spinal Fluid as an Aid to Diagnosis.

THE study of the cerebro-spinal fluid may not as yet have been raised to the dignified level of inclusion in the "ologies" of medicine, but its present-day vogue far exceeds the expectations of the pioneers of twenty years ago. There are few departments of medicine in which diagnosis or treatment is not on occasion materially assisted by resort to the aid furnished by the cerebro-spinal fluid. It has attained the distinction of having books devoted to itself: microscopist and chemist vie with each other in elaborating new tests or discovering new properties to add to the sum of knowledge and, incidentally, to harass the already overburdened student. Serological, immunological, and physico-chemical principles are being applied with zest to the study of the fluid, and no one dare assert that the field has yet been fully reaped, for we do not even know that it has all been sown.

Problems of the origin, formation, and absorption of the cerebro-spinal fluid are not settled, though the general impression derived from experimental observations is that its source is the blood, whence it is separated out by the choroid plexus; its absorption proceeds by diffusion from the sub-arachnoid spaces and also by lymphatics. Even its function or functions still elude specific determination, apart, perhaps, from its mechanical effect in equalising cerebro-spinal pressure; and as for its precise nature, opinion is still divided on its being a filtrate, transudate, secretion, or dialysate. Fortunately, however, the practical purposes to which its investigation may be put are independent of theoretical uncertainties, though one undecided question is fraught with important therapeutic possibilities—viz., whether the meninges and choroid plexus are permeable. Experiment does not here assist as much as might have been a priori supposed, for the permeability of these structures seems to be very different in disease from what it is in health, and the artificial conditions of experimentation bear but a remote resemblance to what obtains in pathological states. Clinical experience demonstrates the ease with which the fluid can become infected by organisms or impregnated with toxins, since the subarachnoid spaces are continuous with peripheral lymphatics via the spinal and cranial nerves; but the therapeutist is not apparently able to reach the system with equal facility, the choroid plexus, at least in health, offering great resistance to the passage of drugs from the circulation to the fluid. On the other hand, it is well recognised that drugs are absorbed from the fluid into the blood with remarkable rapidity. For this, among other reasons, recourse is had to the more effective, if less natural, method of lumbar puncture. The profession as a whole must by this time be familiar with the diagnostic value of lymphocytosis, positive globulin test, and positive Wassermann test in cases of neurosyphilis, though it is doubtful whether fluid investigation by itself serves to differentiate the clinical varieties of tabes dorsalis, general paralysis, and cerebro-spinal syphilis. Less well known, perhaps, is the syndrome of Froin, consisting of spontaneous coagulation of the fluid, xanthochromia, and a more or less normal cytology, or, in slighter degrees, an increase of the albumin content without xanthochromia; indicative of spinal compression, the syndrome is of the utmost practical importance. In cases of meningitis of whatever kind microscopical examination of the fluid is a diagnostic necessity, and certain changes in glucose content, chlorides, and albumin or globulin are coming to be recognised for their differentiating import. A recent advance has been made by the discovery of the Lange gold-sol test, the essence of which is that colloidal gold in solution is not affected by normal fluid when diluted with a weak solution of sodium chloride, whereas pathological fluid produces characteristic changes for various diseases, recognisable by alteration in the colour of the solutions. The test is peculiarly sensitive and is regarded as of much significance. A "paretic curve," for example, in the coloration of the series of solutions used in the test, has been found with constancy in fluid from cases of general paralysis, which is a spirochætal disease; and the appearance of a more or less similar "curve" in disseminated sclerosis is one of the arguments advanced within the last year or two for an analogous origin for the latter. Still more elaborate investigations by physico-chemical methods to determine specific gravity, viscosity, freezing-point, and H-ion concentration, may serve diagnostic purposes, but have not as yet been shown to be of special practical value.

From the therapeutic standpoint the results obtained in epidemic cerebro-spinal meningitis by treatment via the spinal fluid have been nothing short of brilliant, but in other varieties of meningitis disappointment is too often the outcome. Relief of tension by lumbar puncture has proved efficacious in not a few cases of meningitis serosa circumscripta, in hydrocephalus, and in some forms of cerebral tumour, yet the procedure is merely palliative and of limited applicability in these diseased conditions. Various forms of headache, similarly, are relieved by occasional withdrawal of fluid, and some cases of Ménière's syndrome. Intraspinous treatment of neurosyphilis, in spite of essays innumerable, has given good, bad, and indifferent results alike, and is not yet established on a secure foundation. In fact, there seem to be limitations to spinal fluid therapy as at present practised, and it is conceivable that better results will be obtained if and when the cerebro-spinal fluid system is reached from within rather than from without.

The Bristol Small-pox Outbreak.

THE country as a whole has kept so clear of small-pox lately that it is well to consider the lessons to be learned from any outbreak such as that which has recently taken place at Bristol and fortunately has now subsided. It is quite certain that our security against small-pox and other infectious diseases largely depends upon the constant vigilance of the sanitary authorities, and especially of port sanitary authorities, for it is notorious that a large proportion of the population has not received even the limited

protection conferred by vaccination in infancy. It is, of course, quite common for an outbreak to begin with a mild case, modified by vaccination, but in the case of the Bristol dock labourer the attack was so mild than an examination of his face, body, and arms at the time when his wife and baby were down with the disease, revealed no signs of any recent eruption. His arm bore four good scars of infantile vaccination, his age was 29, and his denial of having had any recent indisposition was emphatic. It was only after careful search had failed to discover the source of infection, that an admission by his wife that he had been off work sick for four days after long nightwork early in December led to a second careful examination, and the discovery of the single pustule under the thick skin of the sole of the left foot. It seems fairly certain that had medical advice been called in for this man early in December the nature of his indisposition would not have been suspected. Few practitioners nowadays have much experience in diagnosing small-pox, and these single pustule cases are extremely likely to be missed. Until symptoms give rise to more decided manifestations diagnosis must be very difficult. Fortunately the infectivity of such extremely modified cases is probably slight and limited to the immediate contacts. In the present instance the infection only spread to bed-contacts. The Leicester system, we believe, rather relies upon the fact that with an unvaccinated community the first case is not likely to be missed. Thus the first case runs the chance of a severe attack for the good of the community; the disease is recognised, and the contacts are vaccinated in time to modify or prevent the disease. In the Bristol outbreak the second crop of cases included a severe fatal case in an unvaccinated infant, which led to the disease being recognised.

It is hardly profitable to speculate as to whether, in the public interest, it is better for the first case to be unmodified and diagnosed, or to be modified and liable to escape notice. Medical skill must work towards rendering each person of the community as safe as possible. We have to recognise that a great proportion of the population are combustible material either from being unvaccinated or only vaccinated in infancy, and that, should they contract small-pox, these modified cases are liable to be missed. Vigilance by sanitary authorities in speering back for the original case, and searching out and vaccinating contacts, must therefore be our safeguard. It seems improbable that we shall adopt an efficient system of vaccination and revaccination in this country, at any rate for a long time. Fortunately each individual can protect himself, herself, or their dependents, and no one need have small-pox. The Bristol outbreak ended with the third crop, which consisted of four cases. Of these, one, aged 36, had one good scar of infantile vaccination, and the other three, aged, respectively, 8, 23, and 24, had not been vaccinated at the time of exposure to infection. All four were vaccinated after exposure to infection, one of them (unvaccinated) on the fourth day after exposure, but in the other cases vaccination may not have been secured until five or six days after exposure to infection. The vaccinations all took. Three had a modified and discrete attack, including the girl who was vaccinated on the fourth day. One had a severe semi-confluent attack. All made good recoveries. Bristol is to be congratulated on its escape.

We must expect many similar outbreaks in the present unprotected state of the community. The Bristol small-pox hospital was in use at the time of the outbreak for early cases of tuberculosis in children, and the children, of course, had to be sent home. Small-pox hospitals are for long periods not needed for small-pox, and possibly more permanent use could be got out of them if, in these days of motor ambulances, groups of sanitary authorities combined to use one of their small-pox hospitals for the reception of the first cases of an outbreak in any of their districts. There would thus be a possibility of dealing with small outbreaks, like that at Bristol, with a minimum waste of hospital accommodation and without having to disturb hospital inmates of a different character.

The Dangerous Drugs Act and the Draft Regulations.

THE announcement of the appointment of two influential committees in connexion with the Draft Regulations under the Dangerous Drugs Act may cause apprehension lest conflicting advice lead to confusion. The conditions of election of the one and the terms of reference of the other should relieve anxiety. The first consists of 10 Members of the House of Commons, who practically form a watching committee pledged to secure the fullest consultation and consideration before the Dangerous Drugs Act Regulations are settled. This committee was the outcome of a large meeting of Members of Parliament recently convened to meet representatives of various interests affected by the Draft Regulations. Before the proceedings commenced the Home Secretary had stated in the House that he was prepared to appoint a small committee "to consider and report, in cases in which the Home Office had not been able to come to terms with the interested parties, what further modifications, if any, can safely be made, having regard to the main principles on which the Regulations are based and which are essential in the public interest for safeguarding the use of the drugs." The names of those forming this Official Committee have now been made public. It includes representatives of the Home Office and four Members of Parliament, one of whom was formerly secretary of the Pharmaceutical Society of Great Britain.

What is needed under the new Act is a schedule to secure public safety, and the Regulations must be drafted with that object, and with no other. But it goes without saying that they should give as little trouble as possible to those who have to work under them, whose professional position must be considered. We hope that the Committee will keep these two big issues steadily before them, trusting medicine and pharmacy to sink differences of opinion for the common good.

RED CROSS SUNDAY.—The Archbishops and the heads of the churches have recommended that the collections on Sunday, Nov. 13th, the Sunday following Armistice Day, should be given to the Red Cross and Order of St. John. The Navy and Army and the Archbishops of Ireland and Wales also join in the appeal. A letter has been sent to the clergy of all denominations announcing this fact and stating that the scheme of the Joint Council of the Order of St. John and the British Red Cross Society covers the case of ex-Service men and cripple children, voluntary hospitals, convalescent homes, and nursing associations, motor transport of sick and injured, infant and child welfare, medical supply depôts, and educational propaganda for the prevention of disease. Donations and subscriptions should be sent to the Joint Council Finance Committee, 19, Berkeley-street, London, W. 1.

Annotations.

"Ne quid nimis."

A QUI MIEUX MIEUX.

THE ancient French proverb, with the suggestion of emulation which it contains, might well be chosen as the watchword of two international bodies at present in the throes of a conflict as to who shall be foremost in well-doing. We refer to the League of Red Cross Societies and the Comité International de la Croix Rouge. It had been hoped that the resolution passed at the meeting of the general council of the League in March, 1920, a meeting attended by representatives of the International Committee, had precluded all possibility of duplicating work. The objects of the League, as defined in this resolution, were as follows:—

I.—To encourage and promote in every country of the world the establishment and the development of the duly authorised voluntary national Red Cross organisation, having as purposes the improvement of health, the prevention of diseases, and the mitigation of suffering throughout the world, and to secure the coöperation of such organisations for these purposes.

II.—To promote the welfare of mankind by furnishing a medium for bringing within the reach of all the peoples the benefits to be derived from present known facts and new contributions to science and medical knowledge and their application.

III.—To furnish a medium for coördinating relief work in case of great national or international calamities.

However, the International Committee now point out that their members attended without any voting rights, and that they never intended to express agreement with the above arrangement. One unfortunate result which has drawn attention to the need for further conference is that recently appeals on behalf of the same object were received by the national Red Cross societies from both international organisations. An article [1] by Sir David Henderson, Director-General of the League, explains the present situation from the League's point of view. The committee have a courteous but weighty rejoinder in their own official organ.[2] There is no doubt either that perfect harmony is possible or that it can only be achieved by a round-table conference. It is equally clear that the Red Cross societies should make themselves vocal at such a conference. Although national Red Cross societies appoint their representatives on the board of governors of the League, neither organisation can be said to have a democratic constitution. At the same time both bodies are democratic in spirit and anxious to consult their constituents, who may well insist that the control of international organisation shall be carried on in peaceful coöperation at Geneva. To the League is deputed the right of organising or building up Red Cross societies. The production of the *International Journal of Public Health* is one of the League's best achievements, and the journal has no competitor. Many of the other activities of both bodies are separate and distinct, and the field of overlap is comparatively small. Nevertheless, the right solution of present difficulties may be an organic union of the two societies. The main objection to this course, mentioned by Sir David Henderson, is that the same international body cannot properly combine the duties of a central agency for the societies both in war and in peace, the war-time function being more properly carried on by such a committee of neutrals as the present International Committee. This difficulty could, however, easily be met by appointing a neutral subcommittee on the occasion and for the duration of the next war, a contingency for which the Red Cross must, however unwillingly, provide.

The meetings of the councils of both bodies in Geneva at the end of this month will give the necessary opportunity for the Red Cross societies to make known their opinions concerning the respective duties of the two central organisations which, as Sir David Henderson says, exist only by their will and for their service. We have every hope that an economy in righteousness will result.

[1] Bulletin of the League of Red Cross Societies, December, 1920.
[2] Revue Internationale de la Croix Rouge, Feb. 15th, 1921.

LIGHT AS A REMEDIAL AGENT.

THE Londoner, who, after months of winter gloom, receives the baptism of spring sunshine may be excused for accepting uncritically the therapeutic value of the yellow rays of the solar spectrum. We are brought up to believe that sunshine brings colour to the child's cheek and to deduce therefrom, however rashly, that hæmoglobin, no more than chlorophyll, is properly developed in the dark. Dr. A. Rollier, of Leysin, in bringing the remedial effects of Alpine sunshine before our readers this week, takes some trouble to set out the physical as well as the clinical data upon which his claims are based. Attention has long been directed to the ultra-violet rays of the spectrum in producing cutaneous pigmentation, these rays being absorbed by the melanotic cells of the epidermis and by the lipochrome of subcutaneous tissue and blood plasma, with what fate we do not know, but Dr. Rollier gives reason for not neglecting the less-known bactericidal action of the penetrating infra-red rays, recalling the interesting fact that certain fluorescent substances have the power of transforming short light waves length into long ones, a property which has been claimed for quinine when circulating in the blood. Solar radiations as a whole are not only harmless but seem to be actually beneficial to the cells of the higher animals. Patients undergoing heliotherapy, even when confined to bed, retain good muscular development, which Rollier suggests may be due to direct stimulation of an electrical nature. Varicose ulcers yield to the cicatrising action of the sun, while anæmia and rickets are particularly amenable to sunlight treatment in the Alps. Whole sunshine is thus coming into favour, as distinguished from particular components of sunshine, in somewhat the same way as whole bark and total opium alkaloids are establishing themselves above quinine and morphine. Whole sunshine fortunately, even if thin, is accessible also in the lowland, and the results of conservative treatment of surgical tuberculosis at Alton, as related by Sir Henry Gauvain to the Medical Society of London on March 14th, are not inferior to those of Dr. Rollier at Leysin.

There may not be much to say on the other side and not very gracious to say it, but Dr. R. Crawshaw Holt, tuberculosis officer to the Derbyshire County Council, has had the courage to denounce sunlight as a harmful agent in the human economy at a recent debate before a northern medical society. He might have begun with the classical example of the survivors of the Sicilian expedition, whose eyelids were removed by their inhuman adversaries, and who died miserably from exposure to the full glare of the Mediterranean sun. Dr. Holt regards sunshine as a cause not only of sunstroke, but of anæmia, chorea, and poliomyelitis, and as standing in special relation to such epidemic diseases as typhoid, measles, and scarlatina. He thinks that accident cases admitted to hospital during the dark hours have a better chance of recovery than those admitted during the daytime, and he warns the surgeon against exposing the deep parts to light during operation. Three of his tuberculous patients whose chances of recovery were otherwise good, succumbed to the extra dose of sunlight due to the Summer-Time Act of last year. Incidentally he explains in a delightful manner why children are never so happy as when they are dirty. Dirty hands are not so transparent as clean hands. The dirt protects the delicate subjacent skin sensitive to the malignant rays of the sunlight. It is, of course, in the tropics that sunlight has been most convincingly accused of harmful properties, and it was Dr. L. Sambon who photographed the spectrum of an electric arc after its rays had passed through the skin of an Indian native in order to determine the material to be worn by white-skins to have the same protective effect. Five thousand suits and 5000 hat-linings of orange-red colour were actually issued for American troops in the Philippines on the advice

of the Surgeon-General's department. Of late years, however, the actinic theory of sunstroke has been overshadowed by the greater probability of the condition being due to heat exhaustion.

The truth is that little exact work has been done on the effect of light on the human organism. No attempt has been made to separate the various causal factors. Obviously in a health resort many other agents are at work: altitude, surroundings, wind, air temperature, and finally change of scene, that mysterious and potent factor that invalidates all uncontrolled climatic experiments and makes every new method or remedy almost certain of immediate success. It would certainly be well to clarify our ideas of what we mean by the effect of light by excluding both infra-red heating rays and ultra-violet chemical rays. A useful piece of experimental work at Johns Hopkins University is recorded in the first issue of the new American *Journal of Hygiene* (January, 1921). Dr. Janet H. Clark has investigated the action of light as emitted by the iron arc on the rabbit's ear. She cites the observation that exposure of rats to darkness, or to red light, causes an initial decrease in the red count and hæmoglobin index which is evened out in a few weeks by the increasing concentration of the blood. She controverts the prevalent idea that the solar spectrum extends further into the ultra-violet in the tropics, quoting experiments by A. Miethe and E. Lehmann, who found the limit of the spectrum on the violet side precisely the same, whether measured at Assouan, Berlin, or Zermatt. Her own results are to the effect that the far ultra-violet rays agree with the visible rays in producing lymphocytosis, while the near ultra-violet rays have a depressing effect on the lymphocytes and the long waves no apparent effect at all. There is much more work to be done on lines such as these before the application of light as a remedy is placed on a firm scientific basis.

FRACTURE-DISLOCATION OF THE NECK WITH PARALYSIS: RECOVERY.

Dr. L. A. O. Goddu has recently reported[1] the following remarkable case. On Oct. 27th, 1919, a man was hit by a bag of wool in the back of the neck and thrown on the floor. He lost consciousness, and when he revived found his left arm completely paralysed. For a few days there was a great deal of pain in the back of the neck and left shoulder. He remained at home for four weeks and was examined by Dr. Goddu on Nov. 26th. Both arms were extended along the side of the body, with the fingers in a slightly claw-shaped position. He could not move his arms, but could move the terminal phalanges of both hands. The respiration was 45, and attended with some difficulty. Movements of the head, particularly lateral ones, were restricted. There was no grip in either hand. Reflexes were diminished, especially in the left arm. There was moderate atrophy of the muscles of the arms, especially of the left. Sensation on the left side of the neck, left shoulder, and left side of the chest to the level of the second rib was diminished. The X rays showed a forward dislocation of the third cervical vertebra on the fourth. It seemed that to attempt reduction under an anæsthetic, either by open operation or manipulation, would be dangerous. The trouble with the phrenic nerve, which already was interfering with respiration, might be made worse. Therefore, the following method was adopted. Traction with a 6 lb. weight was applied to the head and kept on night and day for three days. Then an attempt was made by pressure in the right direction to reduce some of the pressure symptoms. This manipulation immediately changed the rate of respiration. After 48 hours another manipulation was performed. At this time the patient said that the neck felt better. Next day he was able to use the right arm with a little help. Examination on Dec. 10th showed in the right arm fair strength in the fingers, forearm, and hand, and weak movement of abduction of the arm from the side and of the external rotators of the humerus. On the left side grasp, movements of the fingers, wrist, pronation and supination, and extension at the elbow were fair, though weaker than on the right; of flexion at the elbow, abduction, and external rotation there was only a trace. On Jan. 7th, 1920, he could use his arms in all directions, and their strength was greatly improved. Traction was taken off and a Thomas collar applied at the end of the third week; this was worn night and day, and then a permanent collar of leather and steel was worn until the fracture had become firmly united. A second X ray examination on Dec. 15th, 1919, showed that the angulation at the site of the fracture was less and that there was more space between the third and fourth cervical vertebræ, thus relieving the pressure on the cord. At the time of the report—Nov. 23rd, 1920—the patient had practically full use of the arms, though the strength of the left was a little less than that of the right, and there was only slight limitation of rotation and lateral bending of the head.

[1] Boston Medical and Surgical Journal, Feb. 17th, 1921.

DISAPPEARANCE OF CONGENITAL SYPHILIS IN THE SECOND GENERATION.

ONE of the many problems of syphilis which is still obscure concerns the possibility of transmission of congenital syphilis to the second generation. Some observers have investigated the histories of children with congenital syphilis with a view to ascertaining whether their parents suffered from acquired or congenital syphilis. Professor Sidler-Huguenin, of Zurich,[1] has attempted to throw light on this problem from another direction. He has examined the progeny of persons born with syphilis, and of 250 such persons he found that 50 had married, and that 36 of these marriages had been followed by the birth of only 65 children. Of the remaining 14 marriages, not one had been fruitful. Incidentally the interesting observation was made that only nine of the 250 subjects of congenital syphilis were known to have attained the age of 60. Only in two cases had as many as four children been born to the subjects of congenital syphilis. With a view to finding out whether congenital syphilis affects the fertility of both sexes equally or not, Professor Sidler-Huguenin classified his material according to sex, and he found that, of 27 marriages, only five were sterile when the wife suffered from congenital syphilis. The remaining 22 marriages had yielded 48 children. On the other hand, as many as nine out of 23 marriages proved sterile when the father suffered from congenital syphilis. The remaining 14 marriages yielded only 17 children. Thus it would seem that congenital syphilis impairs the reproductive capacity of the male considerably more than that of the female. Of 20 mothers with congenital syphilis, 16 gave a positive Wassermann reaction, yet, with only one exception, all their 45 children gave a negative reaction and showed no X-ray signs of syphilis. Of 12 fathers suffering from congenital syphilis, nine gave a positive reaction, yet none of their 15 children gave a positive reaction. Again, none of the 12 women who had married men suffering from congenital syphilis gave a positive Wassermann reaction. Thus it would seem that congenital syphilis is not as a rule, and perhaps never, transmitted from husband to wife or vice versa, or from parent to child. Although the 65 children born to the subjects of congenital syphilis were searchingly examined for evidence of syphilis, it was found only in one case. On the other hand, there appears to be little doubt that the fertility of the subjects of congenital syphilis is much reduced, and that though they do not transmit syphilis itself to their offspring, a few of these are apt to show poor development, rickets, and other signs of inferior quality. Among many other observations of interest was this, that as many as eight women suffered from manifest signs of congenital syphilis at the time of pregnancy, yet none of their 14 children was syphilitic. Professor Sidler-Huguenin recommends a vigorous course of specific treatment before the marriage of a woman whose congenital syphilis is marked by a positive Wassermann reaction.

[1] Schweizerische medizinische Wochenschrift, Jan. 20th, 1921.

A MEDICAL TARIFF THEN AND NOW.

WHEN a tariff of medical fees was first promulgated by the Manchester Medico-Ethical Association, not as an authoritative pronouncement but as a guide to medical men, we gave it cordial welcome[1] in terms that showed its issue to be opportune. A further tribute to its usefulness was a letter, published a few weeks later, from the embarrassed secretaries of the Association, admitting inability to cope with the demands for the pamphlet and announcing that in future it would be obtainable only through a bookseller. The brief explanatory preamble to the suggested tariff does not appear to have suffered or indeed needed much alteration in nearly 70 years. Now, as then, the Association pleads the difficulty of attempting to put forward a fair scale of charges for a profession which, "unlike all other trades and professions, continues to claim its remuneration not only according to the abstract worth of its services, but also with regard to the financial status of its clients"; but adds the modest hope that a recommendatory tariff may serve at least as a reference in disputes, and as a useful guide to the young practitioner. The present is the fifth edition; no revision has been made for 28 years, and in view of the enormously increased cost of living the difference between even the original and the present scale can scarcely be described as excessive. The patients are divided into classes according to the rent they pay; the classification of landlords, lodgers, shopkeepers, "notoriously wealthy men of penurious habits," and presumably also of notorious spendthrifts with no reserve fund for illness, is and must be left to the discretion of the practitioner.

Tariff of fees for general practitioners.—Scale A compares the more important items of the tariffs of 1865 and 1921. Class 1 comprises patients whose house rental does not exceed £26. Class 2: rental between £26 and £50. Class 3: rental between £50 and £100. Class 4: rental over £100.

The tariffs in Scale A are recommended irrespective of the supply of medicine. Surgical operations are not assessed, but the fees allowed by the Poor-law authorities are regarded as minimal. It will be noticed that the tariffs for ordinary visits in Classes 1 and 2 are not even doubled in 1921; also that a much greater latitude is allowed in Class 3, where the majority of non-panel patients will now belong. The inclusion of a tariff of visits to servants reminds us that the panel system is not everywhere regarded with favour, and that people still often require their own doctor to attend their servants. A guinea for a visit to patients in Class 4 may seem excessive in London, where many people are forced by the house shortage to spend much more than the orthodox 10 per cent. of income on rent, but in the provinces this scale would probably work out approximately correct. When all restrictions on rent are removed some allowance may have to be made for a higher rent-to-income proportion throughout the country. Even now the practitioner in his own interests will have to satisfy himself that some fortunate possessors of a long lease are not wrongly classified. The difference in the detention per hour tariff is interesting, the doctor's actual time being assessed higher in 1921; doubtless routine examinations are less extensive and prolonged now that the physician does not depend exclusively on clinical evidence. It is curious that, in spite of improved means of transport, the distance beyond which an extra fee should be chargeable was formerly a radius of two miles, and now is only one mile, from the doctor's place of residence.

Tariff for consultants.—The tariff of fees for consultants in 1865 and 1921 is shown in Scale B.

On the modern tariffs taken by themselves we have little criticism to offer. We rejoice that advice by telephone or letter is assessed at exactly the same figure as oral advice, but are surprised that, in the opinion of the Association, a call at the patient's house should cost him no more than a consultation at a surgery or at the house of the consultant. Pathological investigations, X ray examinations, and so forth are not assessed. The pamphlet concludes with Scale C—special charges in medico-legal cases, life assurance, lunacy, and so forth. We note that the charges suggested for attendance as witness on behalf of any private party vary, according to circumstances, from 3 to 25 guineas, and that a doctor should receive 3 guineas for making or attending a post-mortem examination. It is time that the fee for attendance at a coroner's court as expert for the Crown and for a post-mortem examination ordered by the coroner should be raised from the absurdly inadequate figure of a guinea each, and we recommend a revision of this scale of fees to the consideration of the authorities.

SCALE A: GENERAL PRACTITIONERS.

1865. —	Class 1.	Class 2.	Class 3.	Class 4.
1.	2/6 to 3/6	3/6 to 5/-	5/- to 7/6	7/6 to 10/6
2.	A visit and a half.			
3.	Double an ordinary visit.			
4.	2/6 to 3/6	3/6 to 5/-	5/- to 7/6	7/6 to 10/6
5.	1/6	2/-	2/6	3/-
6.	2/6 to 3/6	3/6 to 5/-	5/- to 7/6	7/6 to 10/6
7.	2/6 to 3/6	3/6 to 5/-	5/- to 7/6	7/6 to 10/6
8.	2/6	2/6 to 3/6	3/6 to 5/-	5/- to 7/6
9.	21/-	21/- to 63/-	42/- to 105/-	105/-*

1921. —	Class 1.	Class 2.	Class 3.	Class 4.
1. Ordinary visit	3/6 to 5/-	5/- to 10/6	7/6 to 21/-	21/-*
2. Special visit	A visit and a half.			
3. Night visit (8 P.M. to 9 A.M.)	Double an ordinary visit.			
4. Detention †	5/- to 7/6	7/6 to 15/-	15/- to 31/6	31/6*
5. Mileage ‡	2/6 in each class.			
6. Advice at surgery	3/6 to 5/-	5/- to 10/6	7/6 to 21/-	21/-*
7. Advice by letter or telephone	3/6 to 5/-	5/- to 10/6	7/6 to 21/-	21/-*
8. Attendance on domestic servants	3/6 to 5/- in each class.			
9. Midwifery	42/- to 63/-	63/- to 105/-	105/- to 210/-	210/-*
10. Vaccination at surgery	5/-	5/- to 10/6	7/6 to 21/-	21/-*
11. Anæsthetics	31/6	42/-	63/-	84/-
12. Certificates	1/6 * in each class.			

* = and upwards.
† = per hour in 1865, over ½ hour in 1921.
‡ = per mile, beyond 2 miles from home in 1865, beyond 1 mile in 1921.

SCALE B: CONSULTANTS.

For the purposes of this Tariff, a Practitioner is considered a Consultant, when his habitual charges are made according to this scale.

1865. —	Class 1.	Class 2.	Class 3.	Class 4.
1.	21/-	21/	21/-	21/-
2.	21/-	21/- to 42/-	21/- to 42/-	21/- to 42/-
3.	10/6 in each class.			

1921. —	Class 1.	Class 2.	Class 3.	Class 4.
1. Advice or visit alone or letter of advice	42/-	42/-	42/- to 63/-	42/- to 63/-
2. Advice or visit with another practitioner	42/-	42/- to 63/-	42/- to 63/-	63/-
3. Mileage beyond two miles from consulting-room	15/- in each class.			

[1] THE LANCET, 1865, ii., 126.

RADIUM TREATMENT OF LEUKÆMIA.

IN a recent communication to the Académie de Médecine[1] MM. Rénon and Degrais report that since 1910 they have treated eight cases of leukæmia by applications of radium to the spleen. Although all the patients ultimately died at dates ranging from two months to six and a half years after the commencement of treatment, the immediate effects were remarkably good. Spleens which had filled the whole of the abdominal cavity rapidly diminished from day to day under this treatment, and finally resumed their normal size. The number of leucocytes fell from 320,000 to 70,800, then to 20,000, 7000, and even lower. The myelocytes disappeared and the number of red cells increased. The general condition improved, the fever subsided, the weight increased, and after four to six weeks' treatment a cure seemed to have been effected. Recovery, however, was more apparent than real, for from two to 18 months after cessation of treatment signs of myeloid leukæmia reappeared. Applications of radium were resumed, but with hardly any effect, and death took place in a time ranging from two months to some years after the commencement of treatment. The occurrence of the relapses is attributed by MM. Rénon and Degrais to progressive resistance of the myelocytes on which radium had no longer any effect, whether this was due to habituation of the myelocytes to radium like that of spirochætes to arsenic, or to a fibrous change in the leukæmic spleen under the influence of treatment. The writers think that the best way to retard the appearance of relapses and to diminish their gravity is to apply the radium treatment less frequently, and to make it as intense as possible each time.

[1] Bulletin de l'Académie de Médecine, Feb. 15th, 1921.

PLEURAL REFLEX OR GAS EMBOLISM?

IN the March number of *Medical Science* Mr. W. G. Spencer has contributed a critical review to the subject of air embolism following thoracocentesis. It is curious that though this complication has been known and studied for many decades, it still presents several unsolved problems. Only a few years ago Professor Forlanini was inclined to interpret many, if not most, of the alarming symptoms following puncture of the chest to pleural reflex alone. Professor Brauer, on the other hand, has time and again pointed out that these symptoms can better be explained on the assumption that they are due to gas embolism of the brain and medulla oblongata. A bibliography of the papers dealing with this controversy, and published during the past 20 years, would fill many pages, but to judge by the latest pronouncements most authorities now consider gas embolism to be responsible for practically all the sudden deaths, and not a few of the disturbances from which patients recover after an interval of variable duration. With regard to gas embolism, it appears that it can be caused simply by the escape of inspired air into a ruptured pulmonary blood-vessel. It is, in other words, possible to provoke fatal gas embolism simply by wounding the lung without introducing gas through a hollow needle from without. In *Acta Medica Scandinavica* (1921, Vol. LIII., fasc. vi.) there is a suggestive report of a discussion in which Professor Saugman adumbrated the possibility of a pleural reflex giving rise to signs of hemiplegia. His patient was a woman, whose large pneumothorax had been induced several years earlier. Before a refill, the contour of the collapsed lung was determined by stethoscopic and X ray examination. A pneumothorax needle was inserted at a point far from the lung which could not possibly have been wounded by it. The intrapleural pressure was typical at first, but after some 500 c.cm. of gas had been introduced, the pressure suddenly rose to about 30 cm. of water, although at previous refills it had seldom risen to more than 17 cm. The injection was at once discontinued and the intrapleural pressure lowered, but these measures did not avert signs of hemiplegia on the right side. Paræsthesia developed, but by the third day the patient had recovered. Professor Saugman assumed that pleural reflex had set up focal spasm of the vessels of the brain. This explanation was challenged by Professor Petrén, who pointed out that it is contrary to accepted views that a reflex from an organ should act only on one hemisphere, giving rise to signs of hemiplegia. Professor Saugman's hypothesis as to localised vaso-motor changes in the central nervous system as a result of pleural irritation is interesting, but is it supported by convincing experimental and clinical evidence?

FILARIA LOA AND ITS INSECT HOST.

AN important link in the life-history of *Filaria loa* and its association with certain species of the mangrove fly (Chrysops) were described by Dr. A. Connall at a recent meeting of the Royal Society of Tropical Medicine and Hygiene.[1] That Chrysops was a possible host of *F. loa* had already been suspected by Manson and others, and sufficient proof that this is the case is supplied by the results of Dr. Connall's observations made in Lagos, West Africa, in 1917. The work consisted entirely of dissections of mangrove flies caught at Sapele, near the coast, about two days' journey from Lagos, during the period of eight months between March and October. The laborious work of dissection was carried out by Mrs. Connall, and in all 2255 specimens of *Chrysops silacea* and *dimidiata* were examined, 2006 belonging to the former and 249 to the latter species. Sixteen specimens of *C. silacea*, or 0·8 per cent., and six of *C. dimidiata*, or 2·4 per cent., were found to be infected with *F. loa*. The wettest months of May, June, and July provided the largest number of flies. The positive specimens were nearly always heavily infected, the filariæ being usually present in hundreds, for the most part in the thoracic muscles, and in one insect to the number of 427. In two flies filariæ were found among the mouth parts. The creek district of Sapele, it was pointed out, provided a population a considerable percentage of which is infected with *F. loa*, carrying the adult filariæ in their tissues and showing the presence of embryos in the peripheral blood, and many of the Europeans also contract Calabar swellings. In this area there also exist Chrysops in large numbers, a certain percentage of which have been shown to be infected with filaria. There is therefore justifiable ground in regarding Chrysops as an intermediary host of *F. loa*. No feeding experiments were carried out, and they are likely to be attended by considerable difficulties in the raising of the adult insect from the pupa; the use of an insect free from previous filarial infection has to be insured, and reliable experimental results obtained from feeding the uninfected fly on an infected patient.

[1] THE LANCET, March 12th, p. 299.

THE HANDICAP OF THE LEFT-HANDED.

IN a paper on Sinistrality in Relation to High Blood Pressure and Defects of Speech, Clarence Quinan[2] reviews the literature and brings forward the results of observations made with regard to these points on 142 inmates of the San Francisco Home for the Aged. In addition to the ordinary form there are crossed forms of left-handedness which are latent and do not attract attention unless they are sought for; left-eyedness is not uncommon in the right-handed, and, conversely, right-eyedness is common in sinistrals. The ætiology of the mixed forms is obscure, but in some instances it may be due to a compulsory change of handedness in early life. Approximately 4 per cent. of normal persons are left-handed, and it appears that there is some evidence to show that sinistrality is hereditary and implies a relative inferiority in the organisation of the central nervous system, for stammering occurs from three to seven times more often in sinistrals as compared with dextrals. Among 600 men

[2] C. Quinan: Arch. Int. Med., Chicago, 1921, xxvii., 256-251.

between the ages of 44 and 89 years there were found to be 42, or 7 per cent., sinistrals—namely, 14 pure (left-handed and left-eyed), 14 crossed (left-handed and right-eyed), and 14 crossed (left-eyed and right-handed). Comparison of the systolic blood pressure in these sinistrals with that of 100 dextrals showed that a high systolic blood pressure is more frequent in left-handed than in right-handed persons. Thus among 100 pure dextrals with an average age of 69 years 54 per cent. had a systolic blood pressure under 150 mm. Hg, whereas in the groups of sinistrals, all with a lower average age than the dextrals, the percentage of cases with a systolic blood pressure of less than 150 mm. Hg was always under 30. Quinan does not refer to right- or left-leggedness, and as we are ignorant of how much has been written on this subject, Dr. W. K. Sibley's article,[1] now more than 30 years old, may be recalled; he concluded that the majority of people are naturally or artificially right-handed and left-footed, and that as the left leg is stronger than the right there is a tendency to turn to the right in walking, as is shown by the almost universal direction to "Keep to the right"; this right-handedness and left-footedness of most human beings is, in his opinion, an attempt on the part of Nature to preserve as far as possible a bilateral individual, for if the body were wholly right-sided asymmetry would probably result.

THE MORPHOLOGICAL DIAGNOSIS OF PLAGUE.

THE case of bubonic plague described in our columns on March 5th by Dr. V. M. Synge and Dr. J. W. Bigger is of special interest from the public health standpoint, as it occurred in a woman who lived a quarter of a mile from the docks and no source of infection could be discovered. The authors were inclined to incriminate a cat known to be of an adventurous nature. Obviously similar cases may come to the notice of any practitioner in a maritime town, and it may well be borne in mind that the diagnosis of plague can be made in many cases by microscopic examination alone. In no condition other than plague do bacilli with the morphological characters of the plague bacillus occur in large numbers in the lymphatic glands. We reproduce again the micro-photographs of the Dublin case, as these were not printed clearly in some copies of the previous issue.

Plague Bacillus in its Various Forms, as seen in Direct Films and after Culture, in the Case of Plague occurring in Dublin described by Dr. V. M. Synge and Dr. J. W. Bigger.

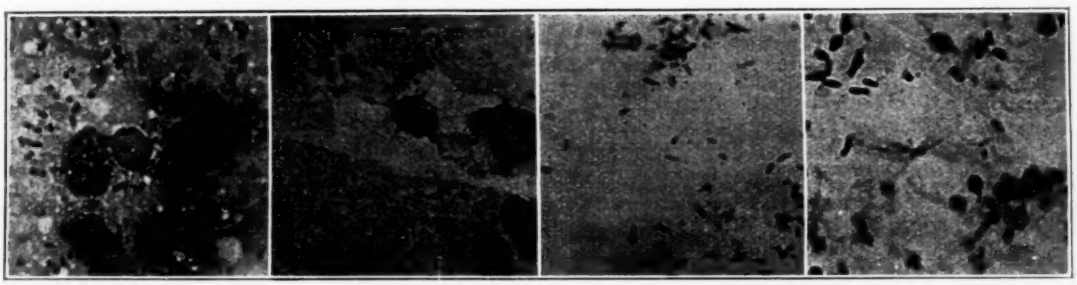


FIG. 1.—Smear from patient's gland. FIG. 2.—Smear from guinea-pig's gland. FIG. 3.—24-hour agar culture. FIG. 4.—Involution forms, 72-hour culture on salt agar.

THE THYMUS GLAND IN GRAVES'S DISEASE.

IN his Harveian lecture delivered on March 17th Dr. Leonard Williams took as his subject the Thymus Gland in Everyday Life, proposing to reinstate as an important member of the endocrine group an organ which had recently fallen into neglect. After sketching the development of the gland and its relation to asthma, he went on to discuss the relationship between the adrenals and the enlarged thymus gland, with special reference to Graves's disease. Dr. Williams said:—

In this curious and disfiguring malady, disfiguring both physically and mentally, there are two facts so salient that any intelligent understanding of the condition demands not only that they be recognised, but definitely co-related. The one is the enlargement of the thymus; the other is the over-activity of the suprarenals. The former, the enlarged thymus, which occurs in about 85 per cent. of the cases, is an astonishing event, for Graves's disease is to all intents a female disease and the thymus to all intents a male organ. The latter, the over-active adrenal, is a fundamental event, for without it the full clinical picture of the disease would not exist. Now the adrenal contribution to the liquor sanguinis makes for masculinity; it produces energy and increases the combative instinct. Here, then, you have two organs, the thymus and the adrenal, both of which are predominantly male, playing leading parts in a disease which is predominantly female. What is the explanation?

I have been seeking the answer to this question for a very long time, and I now believe it to reside in the histological fact which I have already quoted from Sir Edward Sharpey-Schafer—namely, that "an accessory thyroid is often met with in the substance of the thymus." This, then, would seem to be the train of events. In response to a toxic stimulus, almost invariably of intestinal origin, the external thyroid hypertrophies. In those women who have an accessory thyroid embedded in the thymus this hypertrophies too. This in its turn stimulates the thymus into recrudescence, and there is produced what is practically a new growth situated in the critical space between the manubrium sterni and the vertebral column, which presses upon the various important structures converging into that anatomical Clapham Junction. The part of the adrenals is not so clear. It may be that they are stimulated into increased action by the same toxin which provokes a hypertrophy of the thyroid, or it may be that the pressure of the enlarged thymus upon the cervical sympathetic calls forth an increased adrenal activity, for the association between the sympathetic or autonomous nervous system and the adrenals is so close that they are grouped into one under the name of the chromaffin system. Or, again, it may be that the mere hyperactivity of the thyroid produced by its endeavours to fight the toxin evokes a concomitant hyperactivity of the adrenals, for the thyroid and suprarenals are known to act synergically. Which, if any, of these suggestions be the right one, the fact remains that in Graves's disease the suprarenals are in riotous activity, which explains the exophthalmos when it is bilateral, and the alteration in character from docile to aggressive, which is such an outstanding feature of the disease. When the exophthalmos is unilateral or more pronounced upon one side than another irritation of the sympathetic by the pressure of the thymus is the cause.

The remaining portion of the address was devoted to the thymus in relation to chlorosis and headache, and the treatment of the resulting conditions.

A National Health Week, organised by the Royal Sanitary Institute, will be held during October next.

THE House and Library of the Royal Society of Medicine, 1, Wimpole-street, London, W., will be closed from Thursday, March 24th, until Tuesday, March 29th both days inclusive.

[1] W. K. Sibley: Nineteenth Century, 1890, xxvii., 773-778.

THE LANGHAM TELEPHONE EXCHANGE:

MEDICAL MEN'S NEW NUMBERS.

WE gave last week a list, as complete as possible, of the telephone circuits of medical men and dentists practising in the Harley-street area which were transferred on Saturday, March 5th, from the Mayfair to the Langham Exchange. We anticipated that the list supplied to us was not quite complete and now make the following additions:—

Mayfair.	Subscriber.	Langham.	Mayfair.	Subscriber.	Langham.
5146	Baly, C. Peyton	1686	3407	Goodwin, Aubrey	2098
4262	Biggs, G. N.	1872	4209	Gow, John	1184
1858	Burrell, L. S.	1858	3815	Gray, A. M. H.	1982
3560	Chandler, F. G.	2186	933	MacCormac, Henry	2670
3929	Clayton-Greene, W. H.	1960	2631	Pitts, A. T.	2631
4117	Coffin, Stephen	1910	2084	Rees, J. R.	2338
1349	Fox, R. Hingston	1349	285	Vlasto, M.	1064
6180	Gauvain, Sir H.	1456	88	Wilson, S. A. K.	1018

We shall be glad to publish any further necessary corrections.

THE GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.

AT an Executive Committee held recently a number of matters of public interest came up for consideration.

Reappointment of members.—Official notification was read of the reappointment of the following members of the Council: Dr. Benjamin Bloomfield Connolly, as representative of the Society of Apothecaries of London for one year from Dec. 10th, 1920; Sir Arthur Chance, F.R.C.S.I., as representative of the Royal College of Surgeons in Ireland for one year from Feb. 6th, 1921; Dr. Sydney Russell Wells, as representative of the University of London for one year from Feb. 24th, 1921.

Restoration of names to the Register.—The Registrar reported that the names of the undermentioned practitioners had been restored to the Medical Register, from which they had been erased on account of failure to communicate their addresses to the Registrar:—

Addinsell, Augustus W.	Herbert, Charles A.
Dakin-Smith, William H.	MacLaren, James P.
Ellis, Robert S.	Milne, John B.
Ennis, John C.	Nash, Charles H.
Fuller, Ashbury J. S.	Oldham, Ralph S.
Fyzee, Ali A. H.	Somerset, Vere E.
Griffiths, Alfred T.	Strong, Clement P.
Hawkins, Charles T.	Turnbull, Arthur
Hayward, William H.	Wright, Reginald H.

Reciprocity with Spain.—A communication was received from the Privy Council enclosing a translation of a Royal Decree relating to the practice of medicine and dentistry in Spain, with a view to applying to Spain the provisions of Part II. of the Medical Act, 1886. The Decree sets out that, henceforth, only doctors and dentists who have obtained their qualifications in countries with which Spain has reciprocal relations will be authorised to practise; and that temporary authorisations now in force will terminate as soon as the period expires for which they were granted. It was resolved to inquire (1) what privileges of practising in Spain would be afforded to registered British medical practitioners in the event of reciprocity being established with that country, and (2) into the course of study and examinations prescribed for the Spanish diploma.

Indian universities and midwifery.—After considering the replies received from Indian universities and colleges to a circular letter regarding the course of study in midwifery pursued by candidates for Indian medical diplomas, it was resolved that such diplomas under existing conditions did not furnish a sufficient guarantee of the possession of the requisite knowledge and skill for the efficient practice of midwifery within the meaning of Section 13 (i.) of the Medical Act, 1886, and that unless the requirements are forthwith brought into accordance with the Council's resolutions recognition of the respective medical diplomas must cease.

The buff telephone book.—The question of the appearance of names in this book was informally under the consideration of the Committee in November. The Bar Council had sent a communication stating that it considered the book to be issued for advertising purposes, and that it had resolved that it is not in accordance with the etiquette of the profession for barristers to insert their names in the book. The Law Society had so far felt a difficulty in expressing an opinion that it was contrary to the etiquette of the profession that solicitors should insert their names in the book. The view the society had always expressed upon the question of directory advertising was that so long as a directory was open to the whole profession without distinction, whether for payment or not, there was no objection to a solicitor allowing his name to appear in it. The Royal College of Veterinary Surgeons desired to be informed of any decision to which the Council might come. It was resolved:—

That the insertion of the name of a medical practitioner for payment, whether with or without typographical display, in a list issued to the public, and purporting to be a list of local medical practitioners, which is not open to the whole of the profession without such payment, is not in accordance with professional standards in respect of advertising, and might be held to bring a practitioner so advertising himself within the terms of No. 5 of the Council's warning notices.

The Registrar was directed to bring this opinion to the notice of all persons making inquiry respecting their professional position in regard to this question.

Correction of the Medical Register.—The Registrar reported that as the result of the issue of voting papers for the elections of direct representatives for the three divisions of the United Kingdom in November, 1919, 2277 papers in all were returned through the dead letter office. Although there was no legal obligation to do more than send an inquiry under Section 14, very great pains were always taken to prevent the unnecessary removal of names. By the courtesy of the editors a list of those who could not be traced was published in *The Lancet* and *British Medical Journal*. As a result only 484 names had to be erased; in other words, 1793 practitioners were saved from the consequences of their own neglect to keep a correct address in the Register. In consequence of the close relationships which have been established between the Ministries of Health and Pensions, the Boards of Education and Trade, Insurance Committees, chemists, &c., and the Council, it was far more difficult now than it used to be for persons whose names did not appear upon the Register to continue to practise as if registered. The system which was in force before the war for correcting the Register had now been followed again, and circulars of inquiry had been sent to all practitioners from the letter "P" to the end of the Register who did not communicate with the office in the course of the year 1920. These would be followed up and the necessary corrections or removals made.

VITAL STATISTICS OF 1919.

REGISTRAR-GENERAL'S ANNUAL REPORT.

THE birth- and death-rate conditions in 1919 were in some respects exceptional. During the first half of the year the birth-rate fell to the lowest point on record, although in the latter half of the year it recovered considerably. The birth-rate for the entire year stands at 18·5 per 1000, which is 5·3 below the rate for 1914—the last year unaffected by war conditions. The death-rate in 1919 was 13·7, being the lowest on record with the exception of the rates for 1910 and 1912, notwithstanding the heavy influenza fatality in the spring. Among common infectious diseases, the death-rates from enteric fever, measles, and whooping-cough were the lowest on record. From tuberculosis, likewise, the mortality was the lowest hitherto observed, in spite of the influenza epidemic. From cancer the death-rate in 1919 was the highest yet recorded. This disease presents the

one great exception to the general tendency to decline of mortality.

In 1919 the excess of births over deaths was 188,235, as compared with 362,354 in 1914—the last year influenced by peace conditions. The very low excess in 1918, which took no account of war casualties, except 3827 deaths at home from wounds, was due to the great mortality from influenza, in conjunction with the unprecedentedly low birth-rate. In 1919 both factors were still operative in keeping down the natural increase, although births had slightly increased, and influenza mortality was much less formidable than in the previous year. It is important to note that there was not in 1919, as there had been in the preceding year, a large mortality from warfare abroad. The statistics of 1919 support the general belief that the best criterion of the health of a people consists in the mortality in the earlier days and weeks of life. It is probably for this reason that Dr. T. H. C. Stevenson, in his present review, returns to an examination of this question. He not only obtains additional support for the general belief, but supplies a series of instructive tables which will be appreciated by medical officers of health, and which throw new light on the whole question of mortality and its causes in early life.

Saving of Life in Infancy and Childhood.

Of the deaths registered in 1919, only 12·2 per cent. were those of infants under the age of 1 year. The proportion has fallen rapidly in recent years because of the reduction both in infant mortality and in the birth-rate. So recently as 1901–10 the percentage was no less than 22·6. Infant mortality, in terms of total births, was equal to 89 per 1000, and was 15·2 per cent. below the average in the ten years immediately preceding. It is the lowest rate hitherto reported.

The results of life-saving efforts vary considerably in different stages of the first year. The outstanding feature of the year's record is that the mortality of the first four weeks of life was higher in 1919 than in any year since 1911, while at the succeeding ages it was unprecedentedly low, notwithstanding the prevalence of influenza. The deaths above the age of 1 month have long been recognised as the most preventable, and success in reduction of infant mortality has mainly depended on this circumstance. But until the setback in 1919 the recorded rates afforded grounds for hope that the first weeks of life were also beginning to participate in the improvement, as the result of administrative effort in recent years. The decline in mortality at ages above four weeks is noteworthy, but in this case the most remarkable feature in the year's record is the unusually low mortality from infectious disease. The importance of this cause of mortality increases with age, and if infectious disease be omitted from comparison the advantage of 1919 over previous years practically disappears. The only infectious diseases specially important at this age in 1919 were measles and whooping-cough, the loss of life from both of which was exceptionally low. As already stated, infant mortality varies enormously in different parts of the country, the rate ranging from 108 per 1000 births in the larger towns of the north of England to 64 in the rural districts of the south. From the very first day after birth the excess of mortality in the north is well marked. After the first day the regular increase from south to north becomes the rule. In each of three years cited for comparison much the highest rate for the first day of life has been returned from the rural districts of the north, so that it seems as though the birth risk is for some reason at its maximum there. In Wales there was a similar rural excess, but not in any part of England. Therefore, if defective midwifery service in remote districts be the cause, this does not apply to the midlands or the south.

The increased mortality of the first four weeks after birth is now shown to be limited to the first two, the third and fourth having remained almost stationary. The increase in the first two weeks is very general, applying with few exceptions to all types of area throughout the country.

Causes of Infant Mortality.

From an analysis of the causes of infant mortality we learn that in each period after the first four weeks the mortality from the principal causes, except influenza and the respiratory affections, was lower in 1919 than in the years immediately preceding the war. It was lower than in 1918 from all the specified causes. In the case of whooping-cough and the other common infectious diseases the reduction was very great; specially noteworthy were the further large decreases from tubercle and convulsions, beyond the low records for these causes in 1918. The mortality ascribed to tubercle was less than one-third, and that to convulsions was less than half of that so returned 14 years previously. It may be said of these causes, and this is equally true of diarrhœa, that they are gradually disappearing from our returns.

The London mortality from convulsions was, as usual, much below, and that from Wales was above, that of the country generally. London has for years led the way in the elimination of this unsatisfactory form of return. Among other causes deserving mention the following may be selected. Diarrhœa and enteritis with the lowest infant mortality except that of 1912; syphilis, which has declined since the startling rate for 1917, although the pre-war level has not yet been regained; overlying, which has presented a remarkable fall since 1914, so that the 1919 rates were less than half those of a few pre-war years; and atrophy and debility, which shows the lowest mortality ever returned for England and Wales. The unusually high mortality in London from these causes, noted in last year's report, has now disappeared, the rates being again as usual, much below the average. We find that each of the principal causes contributes to the excessive mortality of the north of England and to the favourable position of the south, and this is true for each class of area in both cases. In proportion to the mortality thus returned, convulsions is the chief contributor to the difference, for while its share in the total mortality is less than 7 per cent. it accounts for 22 per cent. of the difference between north and south. Atrophy, with a share of 16 per cent. in mortality, accounts for 26 per cent. of the difference, and prematurity, to which half of the total mortality is due, accounts for 41 per cent.

The great excess of mortality in the rural districts of the north, and the fact that it exceeds that of the northern towns, great or small, are features common to the statistics of recent years. This large excess is mainly attributable to the indefinite headings atrophy and convulsions. There is no appreciable excess from premature birth. In the case of rural Wales, however, the heavy excess of mortality from convulsions must largely represent deaths which elsewhere would be attributed to other causes, and so possibly to prematurity.

Mortality in the First Five Years of Life.

Notwithstanding the continuance during the spring of the influenza epidemic, which had quite exceptionally raised the mortality of 1918 at these ages, the rate in 1919 was very low. With the possible exception of 1916, there has been no year recording so low a figure, and if influenzal fatality be deducted the rate of 1919 is reduced much below that of any previous year.

It is curious to observe that mortality at age 0–1, measured in terms of estimated population at that age, shows no decrease from the corresponding rate of the preceding year, notwithstanding the decline in infant mortality. The anomaly is explained by the history of the birth-rate during the year. The exceptionally scanty births of the first two quarters alone contributed to the mid-year population on which the rate is founded, whereas the numerous births of the last quarter are taken into account in fixing the infant mortality-rate. The population basis exaggerates the mortality of 1919, and that in proportion to births diminishes it; in the one case because more deaths of very young infants accompanied the relatively high birth-rate of the last quarter than the mid-year population would account for, and in the other because the births of the last quarter, which naturally yield a lower mortality within the year than those of earlier quarters, were in exceptionally high proportion. Mortality in the second year of life was lower in 1919 than in any other of the last few years, and therefore almost certainly the lowest yet experienced, but at each of the three succeeding years, 2–3, 3–4, and 4–5 lower rates were recorded in other years. The tabulation of deaths of infants by separate months of age has been continued throughout the second year of life. The process has not been continued beyond the second year because of difficulties connected with the estimates. The data for the first two years have been obtained by deduction of deaths from births, without any allowance for migration.

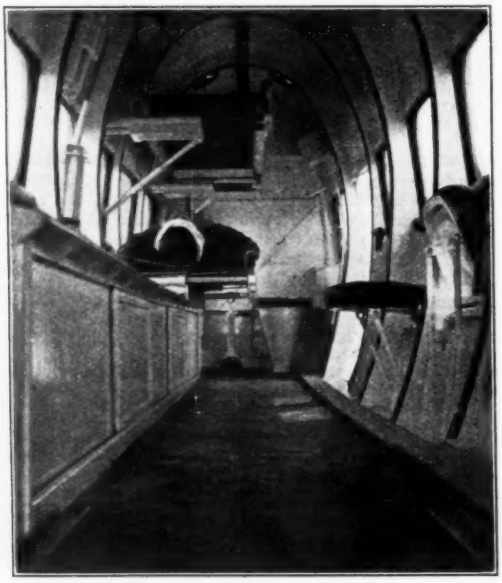
Migration becomes increasingly important with increase of age; and in view of the approach of the Census it has been thought best to limit the estimates to the first two years of life.

Dr. Eustace Greaves has been appointed an Official Member of the Legislative Council of the Island of Saint Vincent.

AEROPLANE AMBULANCES.

THE idea of removing wounded men from the field of battle by means of air service is no new one. It originated in 1910 from Dr. de Mooy, of the Dutch Medical Service, was further ventilated before the war by Mr. Ch. Julliot, of the French Service de Santé, and under pressure from Dr. A. Chassaing, who was both médicin-major and Parliamentary deputy, was nearly realised on the French front in 1918. After an interval of three years French Ministers of State are now reported to be considering the provision of numbers of large medical aeroplanes for use in colonies where other transport is difficult. A machine recently officially inspected at the Villacoublay aerodrome is a Bréguet biplane to carry two stretcher or four sitting cases in charge of a nurse and is provided with steriliser and operating-table.

The aviation department of Messrs. Vickers, Ltd., have sent us details of a machine of the Vickers Vimy commercial type, modified to fulfil the duties of an aeroplane ambulance, and constructed in accordance with the requirements of the Air Ministry: it is capable of carrying at a height of 6500 feet, and at a speed of 109 miles per hour for five hours, the following load: 1 pilot, 1 mechanic, 1 doctor, 1 nurse, 4 stretcher or 8 sitting cases, and 100 lb. weight of medical stores. Fitted with two Napier Lion 450 horse-power engines, and carrying a wireless installation, the machine can climb with full load to the above height in 10 minutes; it can also fly



Interior of the Vickers Vimy ambulance aeroplane, showing a stretcher case in position for transport.

with one engine out of action. The shell is watertight and specially constructed in case a descent on the sea is necessary; an opening is provided in the front of the luggage compartment (under the pilot's seat) whereby stretchers may be loaded and unloaded without any turning of corners. Sitting and walking cases can be admitted through the ordinary doors in the side, which are constructed of a size adequate for rapid evacuation in case of emergency. In the photograph of the interior here given the stretcher racks (which can be folded out of the way of seated cases) are shown in position to hold stretchers. Clearance and lateral floor spaces are allowed for sufficient to facilitate in every way the handling of stretcher cases; ventilation is provided by a fan fitted in the front wall of the cabin; this fan drives air through a screen, which is kept moist, and can be operated when the aeroplane is stationary on the ground. Regulation of the flow of water down the screen will admit the maintenance of an even and cool temperature in tropical countries. A lavatory pan is provided, supplied with a 15 gallon water-tank, and flushed into a receptacle which is easily detached for emptying and disinfecting; a wash-basin is included, and there are separate smaller tanks for washing, drinking, and cooling water.

The uses of such ambulance aeroplanes will be considerable in areas where roads do not exist, or where they are too crowded to admit of rapid transport of urgent cases. For small tropical or mountain expeditions a supply of such aeroplanes might be very helpful.

MEDICINE AND THE LAW.

Riders at Coroners' Inquests.

AT a recent inquest held before the deputy coroner at Brixton, the subject of inquiry was the cause of death of an infant. As to this there was medical evidence founded upon post-mortem examination, and a verdict was found in accordance with it. Evidence was, however, also given that a medical man who was not present as a witness, Mr. E. Nundy, had been sent a message asking him to call at the house where the mother lived. This he had done on the following day, as he was attending to the practice of a colleague on whose panel the woman alleged herself to be. When Mr. Nundy came he found that he was being asked to certify as to the cause of death of a child which had died some hours before the summons to attend had reached him, and he quite properly refused to give any certificate, satisfied himself that the child was dead, and recommended that the mother should be removed from her unsuitable surroundings to the infirmary. She refused to go to the infirmary, but Mr. Nundy, nevertheless, as he informs us, took considerable trouble in arranging for her removal thither. The woman, however, complained at the inquest on account of his not having treated her, with the result that the jury added a rider to their verdict asking that Mr. Nundy should be censured for not having given her proper attention. Clearly this was a most improper finding upon a subject quite outside the scope of the inquiry. Apart from the obvious injustice of censuring a man who had been given no opportunity to give his own version of the occurrence in question, the inquest was held in order to ascertain the cause of the death of the child. The mother's health and her grievances, real or imaginary, against an absent doctor were not the concern of the jury or the coroner.

It is a curious coincidence that Mr. Nundy should have found himself the subject of a rider to a verdict at an inquest, arrived at in his absence, in a case in which he had no evidence to offer as to the death the subject of inquiry. In a pamphlet before us, entitled "Coroners' Courts: Their Uses and Abuses,"[1] he has made his principal topic for criticism and protest the licence accorded to coroners' juries to find "riders." It is to be noted that Mr. Henslowe Wellington in his work on coroners[2] can find no authority justifying the addition of the "rider," as an expression of opinion accompanying a verdict which latter is a finding of fact. Nor do they appear to have any history, but have probably grown up and increased in frequency more or less unnoticed. They do not seem either to have any great effect in promoting legislation or otherwise. Perhaps, when the long-postponed reform of the law relating to coroners takes place, this detail of the procedure in their courts may receive consideration. There seems to be no parallel in other courts for the rider, except perhaps the recommendation of a prisoner to mercy at a criminal trial. That, however, deals with a topic of limited scope, and relevant to the matter in hand. The rider at inquests frequently is neither, and if not used with more restraint may work grave injustice.

[1] Reprinted from the Medical World.
[2] The King's Coroner, vol. ii., p. 74.

Everett v. *Griffiths and Anklesaria.*

The House of Lords recently dismissed the appeal of the plaintiff Everett in this action. It will be remembered that he sued the first-named defendant, the chairman of the board of guardians of St. Mary, Islington, and Mr. K. A. Anklesaria, the medical officer of the workhouse, for damages in respect of his alleged false and unlawful certification as a person of unsound mind. At the original trial the Lord Chief Justice, upon the jury failing to agree, entered judgment for the respondents on the law. The Court of Appeal, by a majority consisting of Lords Justices Bankes and Scrutton, Lord Justice Atkin dissenting, refused to grant a new trial, and dismissed the plaintiff's appeal. In the House of Lords Lord Haldane delivered a judgment of considerable importance, in which he reviewed at length the evidence given and the law governing such cases. In holding that there was no evidence to go to the jury that the respondent Griffiths, empowered by the Lord Chancellor to sign orders in the case of pauper lunatics, or the defendant Anklesaria had failed to observe the law, Lord Haldane pointed out that their lordships were not trying the question whether the appellant was actually of unsound mind at the time of the inquiry, but the different question whether, on the facts as they stood, there was want of reasonable care in coming to the conclusion expressed in the certificate and the reception order. He had already laid stress on the fact that the justice has to act promptly in ordering the temporary care of an alleged lunatic and to be guided by consideration of the safety not only of the person in question but of the public. After referring to the Rules of the Supreme Court governing the powers of the House of Lords in such matters, Lord Haldane laid down that the question was not whether there was literally no evidence to go to the jury on the issue as to want of proper care, but whether there was none that ought reasonably to satisfy the jury that in point of fact such care was not taken. With regard to the respondent Griffiths, he added that assuming that he had actually satisfied himself, acting honestly and bona fide, in arriving at his conclusion and proceeding upon it, he had done the very thing which the statute told him to do and no further question arose. Four other Lords of Appeal, including Lord Moulton, whose regretted death has since occurred, gave judgment to the same effect as Lord Haldane.

A Dangerous Woman.

Una Hanley, 29 years of age, who was recently fined for falsely representing herself to be a registered medical practitioner, has since been sentenced to six months' imprisonment for bigamy. In marrying Mr. Hanley in 1911 she gave her name as Bowen, and her father's name as David Bowen Bowen, Gentleman. In going through the form of marriage in 1920 at a registry office, the subject of the charge of bigamy, she described herself as Margaret Patricia Crawford, M.B., B.S. London, and gave her father's name as Major-General James William Keogh, deceased. As a matter of fact she was the illegitimate daughter of a woman named Bowen. Her desire to extract profit from falsely associating herself with the medical profession was not shown for the first time when she committed bigamy. While living with her husband, and without his knowledge, she had defrauded many people, and on one occasion obtained more than £3000 from an officer with the help of a story that she was about to open a nursing home and that she was to be helped in so doing by well-known medical practitioners.

DONATIONS AND BEQUESTS.—**The late Mrs.** Elizabeth Alcock Scott, of Fernbank, Sandrock-road, Tunbridge Wells, has left by will £500 to the Homœopathic Hospital, Tunbridge Wells; £1000 to the Zenana Bible and Medical Mission; and £500 to Dr. Barnardo's Homes.—The residue of the estate of the late Mr. J. E. Darby, of Claygate, Surrey, will be divided among hospital charities at the discretion of the trustees in the event of the failure of certain trusts.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENT.)

MADRAS PRESIDENCY.

Medicine and the New Legislative Council.

Now that the elections of the first Legislative Council under the new reforms are complete, medicine and sanitation, which are transferred subjects, have been taken over by the Minister in charge, Mr. Ramunnarengar, who assumed office early last month. This is, perhaps, as momentous a change as any which has taken place under the Reforms Act, although it must be added that during the last five years Sir P. Rajagopala Chariar, who has vacated his membership of the Executive Council to become President of the new Legislative Chamber, has held the medical portfolio with conspicuous success. There is no doubt that a very largely increased expenditure is necessary if curative and preventive medicine are to do all that is required of them in this Presidency. It remains to be seen whether the new Legislative Council will be prepared to impose increased taxation for the raising of the money required to erect new medical colleges, new hospitals and dispensaries, and for extensive campaigns against epidemic disease. Madras Presidency, with a population of 42 millions, is at present provided with one medical college, which can accommodate only about 500 students. There are in addition four or five medical schools for the training of sub-assistant surgeons, but the total number of medical men passing out yearly is terribly inadequate for the population.

On the preventive side, the sanitary department may be scarcely said to have any existence. The Sanitary Commissioner's post is at present vacant. There are three Deputy Sanitary Commissioners, all Indians, each with a population of about 14 millions under his sanitary charge. In face of the lethargy and passive resistance of municipal councils and district boards where public health measures are concerned, it is wonderful how these Deputy Sanitary Commissioners maintain their enthusiasm. But it is not surprising that even the largest towns in the Presidency have failed to keep health officers, as their position has been just as precarious as was the case in England until security of tenure was obtained.

The Public Health Board.

Meantime the new Minister has introduced a Public Health Board for the Presidency which meets once a fortnight for the discussion of important health problems. The Minister in charge is president, and the members include the Surgeon-General (chairman), the Chief Engineer to Government, the Sanitary Commissioner, the Sanitary Engineer, and the Secretary, Local and Municipal Department of Government, when matters connected with medical research, hospital administration, or medical education are discussed the Director, King Institute, Guindy, the Superintendent, Madras General Hospital, or the Principal, Medical College, as the case may be, will attend the meeting of the Board. The Board of Health has absorbed the existing Sanitary Board and the Malaria Board. These two last had been in existence for many years in this Presidency, and whilst during the years of war their activities were curtailed, they performed useful functions, and were the first attempts to coördinate measures for the improvement of public health. The new Health Board has already met on several occasions.

Personnel of the Consultative Council.

Probably as a result of its deliberations the following communiqué was issued to the press a day or two ago: "The Ministry of Local Self-Government has appointed the undermentioned persons as members of the Consultative Council of Public Health, Madras," and then follows 21 names, including the Surgeon-General, the sanitary commissioner, the chief engineer, the sanitary engineer, the secretary, local and municipal department, the Commissioner of

Labour, and 14 non-officials. The non-official members are most of them members of the Legislative Council, and are chiefly chairmen of district and taluk boards who have practical experience of the difficulties to be faced in carrying out public health work in the mofussil. Three local doctors have also been included. Dr. W. Rama Rao is a local practitioner of long-standing and one who has interested himself for years in public health; Dr. Macphail, one of the staff of the Christina Rainy Mission Hospital, has 20 odd years' experience among the women of the Presidency; and Dr. L. Vira Singhe has been the lady superintendent of the Madras corporation child welfare scheme since its inauguration nearly four years ago. The medical profession is, therefore, strongly represented on the consultative council, and should be able to bring considerable pressure to bear when a scheme for the betterment of public health is held up because of so-called lack of funds. It is to be hoped that with these developments more money will be available for public health work, and that the educated members of the Legislative Council, &c., will try to stimulate their more ignorant fellow-men to some interest in matters of sanitation and preventive medicine generally.

Madras, Feb. 10th.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg.-Lieut. (Dental) W. E. A. Sampson to be Surgeon Lieutenant-Commander.

ROYAL ARMY MEDICAL CORPS.

Major G. W. Heron is seconded for service under the Foreign Office.

Capt. and Bt. Major J. D. Kidd relinquishes the acting rank of Major.

The undermentioned Lieutenants (temporary Captains) to be Captains: J. E. Measham, J. M. Savege, J. C. Burns, G. K. Fulton, and R. R. Evans.

E. C. Lindsey (late temporary Captain) to be temporary Captain.

Officers relinquishing their commissions:—Capt. H. D. Gardner (granted the rank of Major). Temp. Capts. E. C. Dimock (on ceasing to be employed as a Dental Surgeon), H. V. Lamb, F. M. Rorie, W. Andrew, H. Wands, and F. Cameron (retain the rank of Captain). Temp. Lieut. W. H. Steavenson (retains the rank of Lieutenant).

TERRITORIAL FORCE.

Major F. Loud, T.D., Sussex R.G.A. (temporary Major, R.A.M.C. T.F.), relinquishes his temporary commission in the R.A.M.C. (T.F.).

Capts. J. Taylor (late R.A.M.C., Spec. Res.), F. A. E. Crew (from 6th Battalion, Devon Regiment, and to remain attached to the Edinburgh University, O.T.C.), and V. Townrow (late R.A.M.C.) to be Captains.

Capt. H. B. Porteous relinquishes his commission in the T.F. on appointment to a permanent commission in the R.A.F.

Capt. J. R. Pooler to be Major.

Lieut. O. G. Misquith (late 24th Battalion, London Regiment) to be Lieutenant.

4th Northern General Hospital: Major E. C. Clements relinquishes his commission in the T.F. on appointment to a permanent commission in the R.A.F.

TERRITORIAL FORCE RESERVE.

Major G. L. L. Lawson resigns his commission and is granted the rank of Lieutenant-Colonel.

Capt. C. H. J. Fagan, from General List, to be Lieutenant-Colonel.

ROYAL AIR FORCE.

Medical Branch.—The undermentioned are granted permanent commissions as Flight Lieutenants, retaining their present seniority (subject to acceptance of final conditions of service): E. N. H. Gray, R. E. Bell, E. A. Lumley, D. G. Boddie, H. McW. Daniel, and A. E. Barr-Simm.

Flight Lieut. D. McLaren is granted a permanent commission, retaining his present substantive rank and seniority (subject to acceptance of final conditions of service).

Capt. (acting Major) G. Cranstoun is transferred to the unemployed list.

Dental Branch.—Capt. F. B. Stradling and W. Inman are transferred to the unemployed list.

Mr. Charles Leolin Forestier-Walker, M.P., has been appointed a Commissioner (unpaid) of the Board of Control in the place of Sir W. H. Dickinson.

LITERARY INTELLIGENCE.—**Messrs. Kegan Paul** and Co. announce, by Miss Barbara Low, whose outline of the Freudian theory was well received, "The Gift of Psycho-Analysis to Education," a work dealing with the bearing of psycho-analysis on general educational problems.

Correspondence.

"Audi alteram partem."

A CONTROLLED STUDY OF SANATORIUM RESULTS.

To the Editor of THE LANCET.

SIR,—Dr. E. Ward's paper on this subject in your issue of March 12th contains so much that is contrary to the facts of experience that it should not be allowed to pass without criticism, for it is only too evident that unfortunate sufferers from tuberculosis at the present time have not only to fight against a grave malady, but also to struggle along in many areas without the wise judgment of a wide experience to aid them. The gist of Dr. Ward's conclusions is that better results are obtained in cases of pulmonary tuberculosis by the giving of "advice, by treatment at home, or by supervision at a dispensary, than by sanatorium treatment." Now sanatorium treatment may be defined as the best that can be done for a tuberculous patient under the best conditions by a physician who is devoting his whole time to the study of the disease; and if that is not infinitely superior to treatment elsewhere it would follow that the sanatorium physician must be a "mental defective." Yet Dr. Ward has come to the remarkable conclusion, and supported it by statistics, that after the lapse of four years 54 per cent. of patients in Stage I. who have not received sanatorium treatment are "cured," and only 31 per cent. of those who have undergone this special treatment. The former percentage would lead a casual reader to look upon pulmonary tuberculosis as a comparatively benign disease, but the experience of former generations did not give any ground for such an opinion; and while it may be said that the National Health Insurance Act provisions advanced the opportunity of treatment for the mass of tuberculous patients by ten years, I am not aware that it lessened the virulence of the tubercle bacillus. I have never previously come across any statement of figures by a reputable clinician of special experience which made any approach to the claim by Dr. Ward for the results of non-specialised treatment. When statistics lead to an absurd conclusion the compiler of them should really give pause. From the statement that "patients who left the sanatorium under a month are counted as controls," it may be deduced that those who remained in the institution for two months—or little more—were included among the results, and if so, the poverty of the latter can be understood; for a limited period of treatment in a case which would require a 12 months' residence could not be expected to lead to any permanent benefit. In any statement of results cases in a comparatively early stage should be separated from those in which there is little or no prospect of securing arrest of the disease, the former being classified as the results of "sanatorium" and the latter as those of "hospital" treatment; the sanatorium expert being in the best position from close observation to judge of the prognosis. Among the fallacies which Dr. Ward enunciates attention might be called to the statement that ex-sanatorium patients "lose ground so rapidly that after two years they have frequently fallen below the level they would then have reached had they never been in a sanatorium"; for this implies a prescience on Dr. Ward's part which is beyond understanding. The argument he employs, that "had some patients been left at work instead of being removed to a sanatorium for a few months they might have continued the running fight indefinitely," would almost lead one to despair of the effort to secure the arrest of tuberculous disease. The suggestion to allow a patient to continue at work "though far from well" displays an entire failure to realise the serious nature of tuberculous disease, and only a pessimistic attitude towards beneficent sanatorium treatment could account for it.

Dr. Ward damns sanatorium treatment with the faintest of praise, and as far as one can judge from

his paper, his attitude is due to the fact that he does not realise the length of residence in an institution which the stage of disease in a particular patient necessitates. He appears to imply in one place that as this form of institutional treatment is baneful, the less of it a patient submits to the better; for he writes sarcastically: "Possibly if patients were kept at the institutions for a year or more, we should then have our authorities urging for a period of three to five years instead of one." An indefinite stay in a sanatorium or hospital would produce some surprising results; and if Dr. Ward had observed, as I have, a patient in Stage III. with T.B. in sputum reach a condition of complete arrest after a three years' residence and regain his capacity to work as a teacher for two and a half years (with every prospect of continuance), his opinion of the value of sanatorium treatment might rise. It is surprising, in contrast with the general tone of Dr. Ward's paper, to find towards its conclusion the suggestion that "a patient while at the sanatorium would stay indefinitely, the longer the better"; indeed, one would think that another hand had penned the words, for, if he accepts his own statistics, it would be much better to save the expense of sanatoriums and to treat patients "by advice only for the most part, under their own doctor, or not at all, except (by footnote) as dispensary out-patients." From experience in general practice, from attempts by myself to carry out treatment in private on sanatorium lines, and from 20 years' close association with patients in sanatoriums, I have formed a totally different opinion from Dr. Ward, and it is that other treatment of pulmonary tuberculosis stands to sanatorium treatment somewhat in the relation that moonlight does to sunlight.—I am, Sir, yours faithfully,

THOMPSON CAMPBELL, M.D.,
Medical Superintendent, West Riding County
March 12th, 1921. Sanatorium, Ilkley.

THE PELLAGRA OUTBREAK IN EGYPT.

To the Editor of THE LANCET.

SIR,—As I presume that Professor W. H. Wilson's letter[1] completes the series of criticisms which my article on pellagra in THE LANCET of May 8th, 1920, has prompted, I venture to offer a short collective reply.

While agreeing with the first of my critics, Dr. H. M. Woodcock,[2] that the origin of pellagra cannot be solely explained on a dietetic basis, I cannot subscribe to the hypothesis that the *Ascaris lumbricoides* has any ætiological bearing on this subject. In the routine performance of numerous autopsies on pellagrins neither Dr. Manson-Bahr nor myself were able to establish the invariable presence of these helminths in the intestinal canal. With regard to my other critics, Dr. J. Goldberger,[3] Professors Wilson and Lelean,[4] who deal with the subject on similar lines, I confess that their objections, though not insuperable, cannot be so easily dismissed.

However, I must agree with my friend and colleague, Dr. A. D. Bigland,[5] that the view put forward by Dr. Goldberger that the prisoners did not partake of the diet provided is an untenable one. At least, I am quite sure that they ate the hospital diet which was stated to have been supplied. Of course, I cannot vouch for the accuracy of the camp diet, which I extracted from the Report of the Committee of Inquiry on Pellagra among Prisoners of War.[6] With reference to the canteen extras of that diet, Professor Wilson states that the prisoners had not enough money to purchase them, while Professor Lelean expressed himself in his letter thus: "Careful investigation showed that practically the whole of the 2*s.* supplied to the Germans passed through the canteen accounts, &c." But apart from these canteen extras the B.P.V. (biological protein value) of their diet, even according to the report, was deemed adequate.

Now the principal blot on my "escutcheon" rests in the occurrence of two cases of scurvy among these German pellagrins. Admittedly scurvy is a food deficiency disease, and its presence in even two cases only is naturally suggestive that some deficiency might also have been operative in the coincident pellagra. With all due respect to my critics who reason in this manner, I humbly submit that the deduction is quite erroneous. In the recent well-known examples of voluntarily enforced abstention from food I believe that symptoms of scurvy were observed, but I have not heard of any reference to the onset of pellagra. Of course, I make this statement without official knowledge on the subject. At all events, I can still see no reason for not believing that the German pellagrins did not—except for the canteen extras mentioned by Professor Wilson—actually eat the diets which I originally detailed. Undoubtedly, they did not all derive the same value from them, as in addition to the variations in the powers of assimilation in normal individuals must be added the lowered assimilation consequent on debilitating diseases. I fail to appreciate the relevancy of Professor Lelean's allusion to my "missing the cardinal essentials underlying the word 'relative' applied in our report to food deficiency."

Professor Lelean juggles with calories and B.P.V.'s as if they were ponderable entities. Who can say that the nutrition of the body is so "nicely calculated less or more"? Contrast the diet of an Eskimo with that of a Hindu. Why did not pellagra occur among the British or Allied prisoners of war in Germany, Asia Minor, or Bulgaria? None of my critics have satisfactorily answered this apparent anomaly. We are all familiar with the terrible plight of the British garrison of Kut-el-Amara, and yet there is so far no record of a disease resembling pellagra having been observed among them. I assume that there is no reason to suppose that the B.P.V. of their diet approached even by a long distance the last figure of 52 given by Professor Wilson. The association of extensive damage to the intestinal tissues with the appearance of pellagrous symptoms as an argument in favour of the protein-deficiency theory has never appealed to me as convincing. Is one to assume that the incidence of dysentery in the Southern United States was greater than that among the British troops in the East during the war? This certainly cannot be the case. Nor is there any reason to suppose that the incidence of intestinal disease among the German troops was any greater than among our own. Finally, I ask if pellagra has been observed in those who have subjected themselves to a voluntary abstention from all forms of food, as in the recent instances of political prisoners.

It appears to me, Sir, that until all these apparent anomalies can be satisfactorily explained, the protein deficiency theory as the main ætiological factor in pellagra cannot be accepted.

I am, Sir, yours faithfully,
J. I. ENRIGHT.

*** Dr. Enright writes in a covering letter: "From your annotation entitled Recent Researches on Pellagra in Egypt of Jan. 22nd I glean that the conclusions of the recent R.A.M.C. committee[7] appointed to investigate the pellagra outbreak in Egypt are not in accord with those of the previous committee, presided over by Professor Lelean and Colonel Boyd, A.M.S.,[8] and are confirmatory of the opinions which I expressed on the rôle of the food deficiency factor in my original article."—ED. L.

REFERRED PAIN.

To the Editor of THE LANCET.

SIR,—Contributors to the discussion on referred pain now appearing in your columns have overlooked certain points. Reflex visceral symptomatology is divisible into two parts; the first part relates to spasm of true

[1] W. H. Wilson: THE LANCET, Oct. 2nd, 1920, p. 720.
[2] H. M. Woodcock: Ibid., May 29th, 1920, p. 1193.
[3] J. Goldberger: Ibid., July 3rd, 1920, p. 41.
[4] P. S. Lelean: Ibid., July 17th, 1920, p. 156.
[5] A. D. Bigland: Ibid., July 10th, 1920, p. 98.
[6] Boyd and Lelean: Inquiry into the Incidence of Pellagra among Prisoners of War in Egypt, 1918, Cairo.
[7] Report on Investigations of Pellagra among Turkish Prisoners of War in Egypt in 1920, Alexandria.
[8] Boyd and Lelean: Inquiry Regarding the Prevalence of Pellagra among Turkish Prisoners of War in Egypt, 1918, Cairo.

visceral muscle, the second to conditions affecting investments and mesenteries of organs and subserosæ of their containing serous sacs. Unless spasm occur in the muscular tunic, or unless outlying structures are involved in the visceral lesion, visceral disease of grave import may remain undiscovered. Viscera themselves are innervated from segmentary centres of the cord, often far distant from sources whence their investments derive their central neuronic supply, consequently viscero-sensory impressions from an affected organ are felt in one zonal region, while viscero-sensory impressions, from investments of the same organ, are manifested at another place.

For instance, viscero-sensory impressions from muscular tunics of stomach and duodenum follow the track laid down by great splanchnic strands, and their deflections on the spinal system are manifested as referred pain and algesia at points of outcrop and at terminals of upper intercostal nerves, as witness so-called hepar or shoulder liver pain, described with much accuracy by John Hilton in his lectures upon "Rest and Pain." Whereas when gastric or duodenal ulcerations invade investments of these organs or encroach upon their peritoneal coverings viscero-sensory impressions are felt in epigastric or in hypochondriac regions.

I give only a single example, but it is sufficiently illustrative to explain differences which too frequently divide authoritative opinion upon the reliability of new methods of clinical research in the differential diagnosis of visceral disease.

I am, Sir, yours faithfully,
H. WALTER VERDON, F.R.C.S.

Streatham Hill, S.W., March 14th, 1921.

THE FULL USE OF ARTIFICIAL LIMBS.

To the Editor of THE LANCET.

SIR,—Your annotation of March 5th referring to Dr. M. Dockrell's letter is of the greatest interest to those who have lost limbs, and holds out hope that medical opinion is awakening to the fact that muscle training and education of the senses are all-important and indeed imperative to those who have lost limbs before they can return to a normal existence. My personal experience is a thigh amputation, of which I believe there are thousands. The limb-makers are perfectly frank, and there is no disguise that as regards war cases the aim and object of the authorities was to clear the limb hospitals and to send home the men as soon as possible with the best limb available at the time; and of all the mechanical appliances invented the central knee-control with harness over the shoulders was the simplest to avoid the use of muscles, wasted by weeks in bed, and to give a certain amount of confidence to men who had got to regain their balance. Speaking from personal experience since 1916, and quoting from an experience of over 20 years, I know that a mechanical knee worked from the shoulder is entirely unnecessary, and that with a light, well-fitting limb the stump and the stump muscles can develop an easy natural walk with perfect balance, and that the benefit to the general health of the patient is tremendous. Freedom from harness over the chest and shoulders, freedom from mechanical aid is something, but the very fact that the muscles must be developed normally and brought into daily use means much more. The system of training you mention varies with each case, and where one man whose stump muscles had been trained during the period his limb was being made was perfectly ready to go home three days after his limb was fitted, another who had acquired bad habits and a flexed stump required several weeks of careful supervision, though many of the exercises can be carried out at home. An occasional case may require only eight or nine days, some two or three weeks, while a few may require as much as three months. The greater number of men whom I have met have received little or no instruction, and that is why they rise up on the good toe and sling the artificial limb along anyhow, rising and sinking with each step. Many of them are on crutches or pegs, some to this day because they cannot drag 8 lb. along with a short stump. Quoting from one of the ex-Service societies, a number in the streets like a bit of sympathy and prefer not to wear a limb, but I believe firmly that if it was once brought home to them that they could quite simply return to nearly all their pre-war activity they would never ask for sympathy. It has been my privilege lately to help out of my experience a case that had not walked more than half a mile for ten years. A light limb was obtained, a short course of training undergone, and to quote the patient, "What it means to find that one can walk normally, to get to the shops, and carry out household duties, and, above all, to have the use of both hands, because no stick or crutch is necessary, is beyond words." The surgeons in charge of limb hospitals have no time, naturally, but if the need of training were once established there could be no better way of finding employment for some of our disabled men than in making them efficient and in establishing them in the limb centres as trainers of all those who need it.

I am, Sir, yours faithfully,
GEORGE A. PONSONBY.

Wellington Club, S.W., March 12th, 1921.

THE LABELLING OF THYROID TABLETS.

To the Editor of THE LANCET.

SIR,—We have read with great interest Dr. A. E. Carver's letter in your issue of March 12th, and we desire to say that we agree with every word of it. In the early days of thyroid medication our own practice in the matter of labelling thyroid gland tablets was based on the content of desiccated thyroid—i.e., a tablet containing 1 gr. of desiccated thyroid was labelled "1 grain," with the statement that this was equivalent to 5 gr. of the fresh gland. Later we found that there was much misunderstanding as to the dosage and nomenclature of thyroid, and on making inquiries of a number of prescribers as to what they meant when they wrote "Tab. thyroid 1 grain" we found that, without exception, every doctor consulted by us meant 1 gr. of the fresh thyroid, or 1/5 gr. of the desiccated gland. In view of the importance attached to dosage of a potent drug like thyroid, it was felt that if any doubt existed as to the doctor's intention it was safer to err on the side of giving too small, rather than too large, a dose, and, hence, our practice was reversed and our labels altered accordingly. The labels now read thus: "Compressed Tablets Thyroids. Each tablet represents 1 grain of fresh thyroid gland equal to 1/5 grain of Thyroideum siccum B.P.," and medical men who see our labels, or who read our literature, can be under no illusion as to the actual thyroid content of any tablet.

Our experience suggests that writers, and possibly teachers, fail to make clear the distinction between fresh and dried thyroids. It would undoubtedly be better were one rule universally adopted, but in view of the fact that some generations of medical men think in terms of the fresh gland only, it will be difficult to induce them to alter their practice, and the question for manufacturers is how best to carry out the intentions of the prescriber. It has also to be borne in mind that the Pharmacopœia designation is "thyroideum siccum," and where a prescriber writes "thyroid" only, no one can say that it is wrong to give the fresh thyroid. Obviously, when a prescriber writes "thyroid extract" a tablet representing the B.P. substance should be dispensed.—We are, Sir, yours faithfully,

March 15th, 1921. PARKE, DAVIS AND CO.

AS OTHERS SEE US.

To the Editor of THE LANCET.

SIR,—The letter from my old and long lost-sight-of friend, Dr. Wilson Parry, shows a misunderstanding of the point which my previous contribution was intended to make. I certainly have no personal reason to complain of the lack of "worship" among the town wage-earners; rather the reverse. But what disturbs me is that, by the bulk of working people with whom I come

in contact, I am regarded as an exception in appearing to possess any public spirit at all. It was not the attitude of the public of which I complained, but the increasing justification for that attitude afforded by our public manifestations. It was the beam in our own eye to which I referred. The original title of my communication, "The Cad in Medicine," would perhaps have prevented Dr. Parry from misinterpreting my meaning. If we all approached our work in the spirit with which he approaches his, we should hold a very different place in the public mind from that which we actually do occupy at the present time.

Dr. Laing Gordon's letter in your last issue suggests the one direction in which we may look with hope.

I am, Sir, yours faithfully,

HARRY ROBERTS.

Harford-street, Stepney, March 12th, 1921.

DANGEROUS DRUGS ACT, 1920.

To the Editor of THE LANCET.

SIR,—As one of the nameless 6000 medical and dental practitioners "represented" by the London and Counties Medical Protection Society, Ltd., as a subscriber to it for some 20 years, and, moreover, a believer that its Council intends to act in the best interests of the profession, I nevertheless suggest that Dr. Hugh Woods may be mistaken if his letter appearing in your columns on March 12th intends to imply that his Council voices the medical opinions of the society's contributors, inasmuch as they are not in any way consulted. I am, Sir, yours faithfully,

March 15th, 1921. A MEMBER.

URBAN VITAL STATISTICS.

(Week ended March 12th, 1921.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate population estimated at 18½ million persons, the annual rate of mortality, which had been 15·4, 15·5, and 15·2 in the three preceding weeks, was again 15·2 per 1000. In London, with a population of 4½ million persons, the death-rate was 15·1, or 0·3 per 1000 above that recorded in the previous week, while among the remaining towns the rates ranged from 4·9 in Swindon, 8·5 in Bootle and in Dewsbury, and 9·1 in Bournemouth, to 22·4 in Aberdare, 22·5 in Middlesbrough, and 23·3 in Tynemouth. The principal epidemic diseases caused 231 deaths, which corresponded to an annual rate of 0·6 per 1000, and comprised 76 from infantile diarrhœa, 68 from diphtheria, 41 from whooping-cough, 25 from measles, 18 from scarlet fever, and 3 from enteric fever. Measles caused a death-rate of 2·5 in Stockton-on-Tees, and diphtheria of 1·8 in Tottenham. The deaths from influenza, which had increased from 61 to 167 in the five preceding weeks, declined to 149, and included 27 in London, 10 in Sheffield, 9 in Leicester, 6 in Birmingham, and 5 in Hastings. There were 3730 cases of scarlet fever and 2818 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 3738 and 2809 respectively at the end of the previous week. During the week ended March 5th 6 cases of encephalitis lethargica were notified in the County of London, and comprised 1 each in Camberwell, Hampstead, Kensington, Lewisham, Paddington, and St. Pancras. The causes of 32 of the 5392 deaths in the 96 towns were uncertified, of which 6 were registered in Birmingham, and 3 each in London and Manchester.

Scottish Towns.—In the 16 largest Scottish towns, with an aggregate population estimated at nearly 2½ million persons, the annual rate of mortality, which had been 18·2, 19·4, and 18·0 in the three preceding weeks, rose to 18·5 per 1000. The 407 deaths in Glasgow corresponded to an annual rate of 19·3 per 1000, and included 32 from whooping-cough, 17 from influenza, 7 from infantile diarrhœa, 3 from diphtheria, 2 each from enteric fever and measles, and 1 from scarlet fever. The 160 deaths in Edinburgh were equal to a rate of 18·7 per 1000, and included 5 from influenza, 4 each from measles and diphtheria, 3 from whooping-cough, and 1 from infantile diarrhœa.

Irish Towns.—The 147 deaths in Dublin corresponded to an annual rate of 18·1, or 0·8 per 1000 below that recorded in the previous week, and included 6 from influenza, 3 from infantile diarrhœa, 2 from diphtheria, and 1 from whooping-cough. The 161 deaths in Belfast were equal to a rate of 20·0 per 1000, and included 11 from whooping-cough, 3 each from infantile diarrhœa and influenza, 2 from enteric fever, and 1 each from measles, scarlet fever, and diphtheria.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Opposition to New Drug Regulations.

A MEETING of some 150 Members of Parliament was held in Committee Room 10 at the House of Commons on Wednesday, March 9th, to hear the views of the medical profession, the Pharmaceutical Society, and others in opposition to the Regulations proposed to be made by the Home Secretary under the Dangerous Drugs Act. Sir HENRY CRAIK, M.P., presided, and he was supported by Dr. A. COX, medical secretary, British Medical Association; Sir WILLIAM GLYN-JONES, secretary, Pharmaceutical Society of Great Britain; Mr. A. V. ALEXANDER, secretary, Parliamentary Committee of the Co-operative Congress; Mr. J. E. CONNOR, President, Pharmaceutical Society of Ireland; Mr. WALTER MCNAB, Vice-chairman, Scottish Pharmaceutical Federation; Mr. J. KEALL, President of the Retail Pharmacists' Union; Mr. WOOLCOCK, M.P., and Mr. KILEY, M.P.

The CHAIRMAN said he understood that the purpose of the meeting was inquiry rather than protest at the moment. Although the Regulations in regard to the sale of dangerous drugs were quite ripe for publication, they had not yet been submitted to the House of Commons. The Home Secretary had now stated in reply to a Parliamentary question: "I have decided to appoint a small Committee, including one or two Members of the House and a representative of the Home Office as suggested by Mr. WOOLCOCK, to consider and report to me in cases in which we have not been able to come to an agreement with interested parties what further modifications, if any, can safely and properly be made in the Draft Regulations, having regard to the main principles on which the Regulations are based, and which are essential in the public interest for safeguarding the use of the drugs." Sir HENRY CRAIK, said he thought that reply indicated that they had made some impression.

Sir WILLIAM GLYN-JONES then made a statement to the meeting. He pointed out that amongst the measures this country was committed to take under the International Opium Convention of 1912 were "to require persons manufacturing, selling, or using morphine, cocaine, and their salts to enter in their books the quantities manufactured, imports, sales, and all other distribution and exports of the said drugs," but the following significant words were added. "this rule shall not necessarily apply to medical prescriptions and to sales by duly authorised chemists." Having traced the progress of the recent negotiations with the Home Office in regard to the regulations to be made under the Dangerous Drugs Act passed last year, Sir WILLIAM GLYN-JONES said they could not accept as a reasonable explanation of the alarmingly unsuitable character of the Draft Regulations that they were only put up to be shot at. Had it not been for the intervention of the various societies interested, the Regulations as drafted would have been made operative in due course. They realised that Members of the House of Commons shared with their constituents a growing dislike of legislation by Regulation and Orders. Nothing but the most powerful reasons could justify the House of Commons deputing to a Government department the duty of legislating. The Draft Regulations were ill-conceived and badly drafted. Their publication caused grave concern to the medical, dental, and allied professions, and to the agricultural interests. They bore on their face convincing evidence that the Home Office were without the knowledge of the conditions surrounding the supply of the substances dealt with, or that the Regulations were prepared with a deliberate disregard of those conditions. They asked with great confidence that the House of Commons should insist that before making the Regulations the Home Office should take the steps, the necessity for which was the only justification for Parliament in this case deputing their legislative powers to the Home Office. They approached Members on behalf of constituents, highly trained and qualified, whose function it was to prescribe and dispense these substances. They represented those who regarded as a trust from the State the duty of protecting the public from the misuse of drugs, and they felt aggrieved that the Home Office did not welcome their suggestion. This was based on intimate knowledge of the difficulties, and was to the effect that the Home Office should have the assistance of an expert committee to whose judgment detailed suggestions could be submitted. Whether intentionally or otherwise, the attitude of the Home Office suggested an attitude of suspicion. Such an attitude might have been justified if there had been any ground to suppose that they were not as anxious as the Home Office to do everything in their power to assist the Government in carrying out any obligations they might have under the Opium Convention and of taking all possible measures to prevent the formation of the cocaine and opium habit, or any other misuse of the drugs

in question. The methods hitherto adopted were those which were tried in vain by our late enemies—namely, an attempt to isolate the allies each in turn. The mistake of treating them as enemies andnot as friends of measures calculated to prevent drugging they regarded as far from complimentary. They submitted that their request all along had been a simple, straightforward, and businesslike one, and it was with great regret that the persistent refusal of the Home Office to grant it had rendered it necessary that they should trouble Parliament at this stage. The necessity having arisen they had every confidence in leaving the matter in the hands of the House of Commons.

Dr. ALFRED COX said the medical profession were not satisfied with the Regulations.

Dr. NATHAN RAW, M.P., moved:—

"That this meeting agrees to take all possible steps to secure the fullest consultation and consideration before the Dangerous Drugs Act Regulations are made, and appoints a small committee to watch the matter and report; and in the opinion of this meeting any committee appointed by the Home Secretary should have wide terms of reference, and should be empowered to hear any evidence submitted to them on any matter affected by the Regulations, and should be sufficiently large to be fully representative."

Mr. A. M. SAMUEL, M.P., seconded the motion, which was supported by Mr. KILEY, and carried unanimously.

The following were appointed the members of the committee: Mr. J. HINDS, Sir HENRY CRAIK, Dr. RAW, Mr. ORMSBY-GORE, Sir J. BUTCHER, Mr. WOOLCOCK, Sir RICHARD WINFREY, Mr. WATERSON, Dr. MURRAY, and Mr. KILEY.

A Home Office Committee on the Regulations.

The Home Secretary has appointed a Committee to consider outstanding objections to the Regulations under the Dangerous Drugs Act, and to advise what modifications can safely and properly be made, having regard to the main principles on which the Regulations are based, and which are essential in the public interest for safeguarding the use of the drugs.

The Committee is constituted as follows: Mr. CHESTER JONES (Chairman), Sir MALCOLM DELEVINGNE, Captain W. E. ELLIOT, M.P., Major A. C. FARQUHARSON, M.P., Mr. GERALD A. FRANCE, M.P., and Mr. W. J. U. WOOLCOCK, M.P. The Secretary of the Committee is Mr. A. H. ANDERSON, of the Home Office.

HOUSE OF LORDS.

WEDNESDAY, MARCH 9TH.

Criminal Law Amendment Bill.

The Bishop of LONDON, in moving the second reading of the Criminal Law Amendment Bill, said in seeking for the third time to amend the criminal law his motive was to deal with a great and growing evil. Altogether he had received about 80 resolutions in favour of the measure from members of every denomination. He had left out of the present measure the compulsory detention of young girls in homes against their will. He had also left out the clause for the protection of boys because it was felt that no father would prosecute a woman of 21 or even older for misleading his son of 17. The age-limit of 18 in last year's Bill had been reduced to 17. Their lordships would be horrified if they could see some of the Salvation Army and Church Army homes full of children who had been indecently assaulted. The horrible idea of some men was that they could get rid of venereal disease by assaulting an innocent child. The Bill said that between the ages of 13 and 16 a child was incapable of consenting. It was provided that reasonable cause to believe that a girl was of or above the age of 17 should not be a defence. The time-limit was increased from 6 months to 12 months. The right reverend prelate gave figures to show the fearful extent of the evil of venereal disease, and said that it was the prostitution of young girls which was at the bottom of the whole thing. The societies for combating that disease with which Lord Willoughby de Broke and Lord Sydenham were associated had failed in their methods because they had not the courage to go to the real source. He would quote from a document which was not public yet, a report on the condition of London by two of the greatest authorities. This showed that in the clinics of London—and it should be remembered that only about one-tenth of the cases went to these clinics—there were 27,364 new cases in 1919 and 298,066 attendances. In the first half of 1920 there were 15,797 new cases and 214,659 attendances. At the London Hospital Clinic the numbers had increased from 658 new patients in 1918 to 1452 new cases in 1920. These medical authorities went on to report in their most interesting and careful summary that a large percentage of the patients were quite young—from 16 to 20 years of age.

The Earl of ONSLOW, Civil Lord of the Admiralty, said that the Government had hoped that the labours of the Select Committee would have resulted in a non-controversial measure, but it was clear that there were considerable divergences of opinion, especially regarding venereal disease and indecent advertisements. Although the Government left the matter to the unfettered judgment of the House they viewed the progress of the measure sympathetically. If it were passed by their lordships without material amendment the possibility of giving further facilities for its progress in the House of Commons would be considered. But in view of the pressure on Parliamentary time he could not give an undertaking that it would be possible to secure the passage of the Bill in the present session.

Lord PHILLIMORE said every form of protest should be made against the present state of immorality and he was quite content that some Bill such as this should pass. But he warned their lordships that if they took away the defence of "reasonable grounds to believe," and raised the age to 17, they would do in many cases much injustice and much hardship.

The Earl of MALMESBURY hoped that while their lordships would give the Bill a second reading they would support an amendment in Committee reducing the age of consent to 16.

Lord COLERIDGE said he thought that on the whole it would not be an unwise thing to raise the age to 17, but if they also deleted the defence of reasonable ground for belief they will go beyond public opinion and the law would break in their hands.

Viscount CAVE said he would rather have a clean cut, retain the age of 16, and abolish the defence of reasonable belief than raise the age and leave the defence standing.

The Earl of DESART said the Bill would involve the danger of very great injustice.

Lord WILLOUGHBY DE BROKE said he was going to vote for the second reading of the Bill, but the right reverend prelate must not imagine that he had disposed of the arguments which he would venture to offer in reference to venereal disease.

Joint Responsibility of the Sexes.

Lord DAWSON OF PENN said when he put the evils on the one side and the Bill on the other he could not see that the measure was going to succeed in removing the evils they all so greatly desired to remove. He did not say that the Bill was not a good one, although he thought there were certain respects in which it was liable, quite unconsciously, to do evil. They needed to distinguish between the sexual instinct which was based on nature and the sexual instinct which was unnatural and perverted. Cases of older offenders, men and women, defiling young boys and girls could not be dropped upon with too heavy a hand; but Clause 1 seemed to him to include the possibility and perhaps the probability of sometimes bringing within its meshes the young, possibly a boy of 18, who was accused of defiling a girl of 16 or 15. An offence against such people was on an entirely different footing. That was a natural instinct which had overflowed its banks at an age at which restraint was deficient, and it seemed to him deplorable that young persons under the age of 18 should be liable to the criminal law for offences of that description. Such young people did not require the dock; they rather required education, uplifting and moral suasion. Some proviso should be inserted which would place the younger offender on a different footing from the older offender. When the legislature extended the age for carnal knowledge to 16 it did so because it took the view that a young person of 16 was too immature either to form a judgment or be what he would call a conscious and even instigating sexual agent. But when the age of 16 was passed the changes which took place in the girl were often very rapid, very capricious, and very marked. The girl was unlike the male. The male would develop steadily; the girl would often develop by leaps and bounds, and in the course even of three or four months she would pass from girlhood into apparent womanhood. And when that occurred it was extraordinarily difficult to tell her age. It would be quite easy to select five or six girls of the age of 17 in whom one could represent by appearance any age from 15 to 21. With a girl's quick development after 16 she became a conscious sexual agent. She might be more than that; she might become an intentional sexual instigating agent. That was where his difficulty lay in the raising of the age. He was as anxious as anyone to give all the protection that could be granted, but the very moment that the girl became a conscious and often an intentional instigating agent it seemed to him extraordinarily difficult to throw the whole blame for sexual misdoing on the man. It was a curious commentary to his mind that the large body of public opinion that was constantly maintaining that there should be an equal standard of responsibility for the two sexes—a view with which he had considerable sympathy—should now be willing to protect the girl at the expense of the man, and put the man on an inequality as compared with the girl. It did not seem to be right or fair, or likely to lead to the public good to throw the whole onus on the man. He was not concerned with the older man. The older man of 25 and upwards had developed a certain amount of stability. But take the example of a young man coming up to London

for pleasure. He came up with innocent intentions but full of the impetuosity of youth. Supposing he happened to meet a precocious girl of the age of 16½ years, who might perfectly easily look 18, and who is accustomed to sexual intercourse. Notoriously, a young man was a bad judge of age. The girl formed an attraction for the youth. What did she do? She set to work to throw allurement after allurement over him. She used all the artifices of her sex to achieve her object. She gradually saw him being lashed into the elemental and aggressive male, and when that point was reached he was like a runaway horse: his control had gone. He pursued and he succumbed. It might be asserted, in that particular instance, that the more experienced and semi-professional girl was far more to blame than the youth. But she got off scot-free, while you converted him into a criminal and ruined his career. He was not going to contend that all the cases fell into that category, but those were his reasons for doubting whether it was wise, or possible, to raise the age to 17. There was another point of view which was of considerable importance, and which made one hesitate before placing responsibility for sexual intercourse exclusively on the male. Certain physical realities of life seemed to have been almost entirely ignored by many earnest social reformers. Sex attraction is one of the elemental things of life, and it would be agreed in regard to the instincts which moved men and women in sex matters the first outstanding instinct of the male was pursuit. It might be checked, and should be checked in civilised society, by moral and religious ideas; but there was the elemental instinct. The instinct of the female was resistance, reserve, followed, if she is won, by surrender. That instinct of reserve and resistance on the part of the female was the physical basis of woman's modesty, which was the most potent individual force that made for sexual morality in a community. There was no force which could adequately take its place. The second point was that the sexual desire of the woman was much more conditional than it was with the man. The average woman had to love before she had passion, or at any rate she had slowly to develop a strong liking for a particular individual before her passion was aroused. She had none of the promiscuous qualities of the male and, unconsciously or consciously, her sex instinct was associated with maternity. She was therefore much more protected by nature than the male. That must be taken into account when they were dealing with the borderland age between 16 and 17. They must do one of two things: either they must leave the age where it was, or they must make both male and female responsible before the law for illicit sexual intercourse.

The Widening Basis of Promiscuous Intercourse.

On the question of brothels, Lord Dawson said: I entirely agree with everything that the right reverend prelate has said. But, like a clever advocate, he carefully described a brothel of a particular type. What seems to me to be the true and proper description of a brothel is a place where the proprietor farms the earnings of the girls who resort there. That class of brothel, where the girls either live or resort, where their earnings are either handed to the proprietor, or the proprietor takes toll directly from the patrons, is a brothel according to the more strict conception of that word. And I cannot understand anybody disagreeing with any sort of provision which would lay the heaviest possible hand on such institutions. But we have to be cognisant of this—that according to legal practice, as I understand it, the word "brothel" has a very much wider application than the one which the right reverend prelate described. It is so wide that any place where women resort for promiscuous intercourse, however well conducted or ordered it may be, can be brought within the definition of a brothel. And so it arises that you may even have an hotel which is conducted in an orderly way where women resort, not always with the same men, for promiscuous intercourse, and that hotel can be brought within the arms of the law. Here, again, I feel doubts. It is always a serious thing to try to repress a manifestation of a disease unless you can reach its cause. And one of the most grave aspects, in my humble opinion, of the sexual evil of to-day is the widening of the base of promiscuous intercourse. And that widening of the base of promiscuous intercourse was not the result of the war, though, no doubt, it was aggravated by the war. It was obviously beginning to occur several years before the war, and, though it may be true that sentimental promiscuous intercourse with an amateur is less offensive to one's taste than promiscuous intercourse which is entirely bought from the professional prostitute, yet, viewed from the point of view of the interest of the State and the good of society, I am inclined to think that more harm is done to society by the amateur than by the professional prostitute. And when one sees the base of promiscuous intercourse being steadily widened, does not it make one ask oneself, Is not it worth inquiring why that has taken place; is not it worth inquiring whether it would be possible to check such widening of the base of promiscuous intercourse? I am not prepared to answer that question, but I would throw out the suggestion that if you adopt a policy of too much repression of the manifestation of a disease, you drive the disease inwards, and you alter its manifestations often for the worse, and you do not cure the disease. We have promiscuous intercourse as a fact. Unless we are prepared to make it illegal we have to accept it as a fact. By all means work to reduce it and remedy it by removing the cause, but it is there, and, as long as it is there, the people who indulge in it will find some place to which they can resort. And therefore, while I entirely agree with the very heavy penalties which are suggested for the kind of brothel described by the right reverend prelate, I should deplore if the same repressive policy were adopted towards that different type of place to which I have referred. It is not that I approve of it, but people who indulge in promiscuous intercourse are going somewhere, and I am apprehensive that, if legislation is too repressive towards that hotel type of house, you will still further widen your base of promiscuous intercourse and drive it into the back rooms of restaurants, into tea-rooms, into dancing places, and even into the home. For these reasons I think one requires to have caution, however much one may wish to bring about reform. One wants to inquire in the closest possible manner whether what one seeks to decree may not possibly bring about more harm than good.

Continuing, he said that he would not like it to be felt that he was taking up the attitude of no action. On the contrary, there were provisions in the Bill which he thought one could support with confidence. But he did not believe that the problem of promiscuous intercourse was to be met by legislation, but rather by social reform and betterment, by better houses, by encouraging community life, as was exemplified in the idea of garden cities, larger recreation grounds for the people, such as they got in the public schools, and the better education of youth, by facilities for earlier marriage, the return to the larger family, and the frank recognition that if people were going to marry they must have control over the output of their offspring. On these lines reform could be looked for more hopefully than by methods of legislation.

The Bill was read a second time.

TUESDAY, MARCH 15TH.

Criminal Law Amendment Bill.

The House went into Committee on the Bishop of London's Criminal Law Amendment Bill.

On Clause 2 Lord MUIR-MACKENZIE proposed to substitute for it the following: "reasonable cause to believe that a girl was of or above the age of 16 shall not be a defence to a charge under Section 5 or 6 of the Criminal Law Amendment Act, 1845."

The Bishop of LONDON and the Government expressed their willingness to agree to the amendment and the clause of Lord Muir-Mackenzie was substituted for that in the Bill.

The Committee stage of the Bill was completed, and the Bill as amended was reported to the House.

HOUSE OF COMMONS.

TUESDAY, MARCH 8TH.

Schemes for Welfare of the Blind.

Mr. JAMES BELL asked the Minister of Health whether he had received any protests against Paragraph (d) in Circular 182, which pointed out to local authorities that it must be clearly understood that in connexion with schemes for the welfare of the blind, he would find it very difficult to sanction expenditure on new buildings, and the general tenor of which was such as to discourage local authorities in exercising their duties under the Blind Persons Act in a proper manner; and whether, in view of the inadequacy of voluntary help for the blind which resulted in the Act being passed, he would revise the paragraph in question and encourage the local authorities to incur all necessary expenditure in the interests of these helpless people.—Dr. ADDISON replied: I have so far received only one protest of the kind indicated in the question. I see no reason to withdraw the reference to the welfare of the blind from the circular referred to, seeing that the existing buildings can usually be adapted. I can assure the honourable Member that I am most anxious to promote the interests of the blind, and I feel sure that the schemes which local authorities are required under the Act to prepare and submit to me will be designed to that end.

WEDNESDAY, MARCH 9TH.

Opium for Hong-Kong.

Mr. GILBERT asked the Secretary for India whether there was any arrangement in operation whereby the Indian Government supplied opium to Hong-Kong, and what were the terms and the duration of such arrangement.—Mr. MONTAGU replied: The agreement formerly existing for the supply by the Government of India of opium to the Govern-

ment of Hong-Kong has been renewed for a further period of five years with certain modifications. Under the new agreement, which has effect for five years from Jan. 1st, 1921, Hong-Kong will be supplied with ten chests of opium a month, at a fixed price. No obligation rests on the Government of Hong-Kong to take any prescribed minimum quantity of opium.

India and Dangerous Drugs Act.

Mr. GILBERT asked the Secretary for India whether there were any Pharmacy Acts in operation in India similar to those in this country; and whether it was proposed to introduce legislation in India similar to that of the Dangerous Drugs Act with a view to limit the use of such drugs to legitimate medical and scientific purposes.—Mr. MONTAGU replied: There are no Pharmacy Acts in operation in India similar to those in this country. It is not proposed to introduce legislation in India similar to the Dangerous Drugs Act, as the regulation of the traffic in, and use of, such drugs is already strictly controlled under a variety of local and Imperial Acts. I may add for the information of the honourable Member that it is believed that the law and the practice in India in respect of all such drugs are entirely in accord with the provisions of the Hague Convention. The Government of India were, however, requested some time ago to examine the whole body of law and regulations on this subject, and to effect such amendments, if any, as might be required in order to bring their law and practice into precise conformity with the provisions of the Convention.

New Tuberculosis Treatment.

Colonel Sir ARTHUR HOLBROOK asked the Minister of Health whether, in connexion with the proposed transfer of tuberculosis treatment from the health insurance committees to county and borough councils, he would make provision to secure adequate and permanent representation for the members of health insurance committees upon the new committees to be appointed.—Dr. ADDISON replied: I am hoping to introduce legislation on this subject shortly, and the point to which the honourable and gallant Member refers will be borne in mind.

The Spahlinger Serum.

Mr. HIGHAM asked the Minister of Health whether, in view of the interest among the many sufferers from the disease in this country, he had sent an expert to inquire at first hand into the Spahlinger serum for the treatment of consumption; and, if not, whether he would consider the advisability of sending an expert immediately.—Dr. ADDISON: This question has already been carefully explored and was before the Medical Research Committee in 1914. There would be no advantage in the adoption of the course suggested, as much of the work has been done in London.—Mr. A. M. SAMUEL: Will the right honourable gentleman publish as much as possible about the researches into this treatment, so that those who are suffering from tuberculosis may know whether it is worth their while to pursue any further investigations on these lines or not?—Dr. ADDISON: I will give all the information I have, but the preparation of this material is a secret, and it is quite impossible further to explore such suggestions and give any advice on the subject without proper clinical inquiry and other experiments. Until that material is available it is quite impossible to express any opinion.—Mr. SHORT asked if the treatment was really successful or not.—Dr. ADDISON: I have already said that the material is not sufficient to express any proper opinion. I am sure honourable Members will realise how important it is not to mislead thousands of sufferers from tuberculosis by holding out any hope which may not be justified.

Wellhouse Hospital, Barnet.

Lieutenant-Colonel FREMANTLE asked the Minister of Health the cost to the public of the erection of the Wellhouse Hospital, Barnet; the latest figures available as to the cost of maintenance and treatment; the proportion of such cost attributable to paying patients; the amount of fees received; the number of staff engaged; and the numbers, respectively, of Poor-law patients and paying patients treated.—Dr. ADDISON replied: A loan of £40,000 was sanctioned for the erection of this infirmary, and £38,505 was raised by the guardians. The infirmary was only opened recently and no figures of the running costs or of the amounts recovered from persons relieved in the infirmary have as yet been returned. According to a return made by the clerk to the guardians, the staff numbers 36, and there are also two consultants. I am obtaining from the guardians the further particulars required, so far as they may be available, and I will send my honourable and gallant friend these particulars as soon as I receive them.

Insurance Committees and New Medical Records.

Mr. BARTLEY DENNISS asked the Minister of Health whether he had received any representation from Insurance Committees with regard to the new medical record cards in use for insured persons.—Dr. ADDISON replied: I have received representations with regard to the medical record cards from four only of the Insurance Committees, which, as my honourable friend is no doubt aware, administer medical benefit in every county and county borough. In three cases the representations are on matters of detail, and in the fourth case the committee has sent me a resolution that the keeping of the records is desirable for securing a proper medical service for the insured population. I have also received a letter from the chairman of the National Association of Insurance Committees stating that the opinion of the Executive Council of that body is that the keeping of the medical records is unquestionably in the interest of insured persons.

Death-rate of Infants.

Mr. TREVELYAN THOMSON asked the Minister of Health how the death-rate of infants under one year of age during 1920 compared with the recent preceding years; and whether, as a part of promoting public economy, he proposed to reduce the number of infant welfare centres and maternity beds available for this service.—Dr. ADDISON replied: The death-rate of infants under one year of age per 1000 births during the years 1914 to 1920 is as follows: 1914, 104·62; 1915, 109·72; 1916, 91·21; 1917, 96·5; 1918, 97·16; 1919, 89·13; and 1920, 80. The figure for 1920, which is subject to verification, is the lowest yet recorded. The answer to the second part of the question is in the negative. Mr. THOMSON: In view of the extremely satisfactory results achieved by the Ministry, will the right honourable gentleman consider the desirability of circulating the information among local authorities so that they may continue this good work?—Dr. ADDISON: I am preparing a statement which I hope to issue to the local authorities on this matter.

Vitamines.

Major BARNETT asked the Minister of Health whether any and what steps were being taken to bring to the knowledge of the public the fact that vitamines, which constituted a necessary part of any sound diet, were essential to the diet of the young, and could be secured by utilising whole cereals and whole pulses, fruits, salads, and vegetables; and whether he would publish and disseminate as soon as possible a short practical leaflet which, without advocating any special system of diet, would draw attention to the value of these wholesome and economical foods.—Dr. ADDISON replied: I am considering whether it would be practicable to issue any statement on this subject. Any such statement would, of course, contain as full a reference to the part played by vitamines in nutrition as the present state of knowledge of the subject would permit. The honourable and gallant Member may be interested in the treatment of this matter on pp. 177–184 of the Report of the Chief Medical Officer of the Board of Education published in 1919 (Cmd. 420).

The Treatment of Cancer.

Mr. GILBERT asked the Minister of Health whether his attention had been called to the recent increase of deaths from cancer; whether he had any committee or officers in his department who were making any inquiries into the cause of and cure for this disease; whether his department made any financial grants to any hospital or institution which was providing research work or special wards and treatment for this disease; and, if not, whether, in the interest of the community and the need of combating this scourge, he would favourably consider granting financial help to any such hospital or institution.—Dr. ADDISON replied: I very much regret to say that the number of deaths attributed to cancer continues to rise. My honourable friend is no doubt aware that an extensive research into the causes of the disease has for some time past been undertaken by the Imperial Cancer Research Fund, and the Medical Research Council are facilitating research into the possibilities of radiotherapy and have been the means of providing a substantial quantity of active radium salt for the purpose. Cancer research funds are relatively well supported from voluntary sources, and I do not think that the issues are sufficiently clear for me to recommend grants in aid of the cost of the treatment of this disease at the present time.

Malaria in England.

Captain ELLIOT asked the Minister of Health whether, in consequence of the number of men in this country who still suffered from malaria contracted abroad during the war and of the abundance of mosquitoes present in many parts of England, malaria was now occurring in the civil population; and what steps were taken to prevent the spread of this disease in mosquito-infested areas.—Dr. ADDISON replied: The matter referred to in the question has received the close attention of the medical officers of the Ministry. The action taken is fully described in two separately issued "Reports and Papers on Malaria Contracted in England" relating to 1917 and 1918, respectively, and in the annual report of the Chief Medical Officer for 1919–20. The policy of

prevention is based primarily on securing the early detection of all cases and carriers of malaria and arranging that they are thoroughly treated with quinine, thus removing, or greatly lessening, the risk of infection if they are bitten by mosquitoes which can spread the infection. Efforts are made at the same time to protect all such cases and carriers against mosquito-bite as far as possible. Special supervision for these purposes has been arranged in the Isle of Sheppey, where most of the infection arising in England has occurred. The measures taken have greatly lessened the risk of spread. The total number of locally contracted cases reported among the civil population in England was only 32 in 1920, as compared with 93 in the previous year.

Maternity and Child Welfare.

Captain ELLIOT asked the Minister of Health what grants were made by his department to local authorities towards the cost of maternity and child-welfare work, and what proportion of the total expenditure was represented by these grants.—Dr. ADDISON replied: Grants amounting approximately to £855,000 will be made during the current financial year towards the expenditure of local authorities on maternity and child welfare. The grants represent less than ½d. in the £ on the total sums voted by Parliament for the supply services of the country.

THURSDAY, MARCH 10TH.

Suggested Reduction of Medical Staff.

Lieutenant-Colonel Sir JOHN NORTON-GRIFFITHS asked the Minister of Pensions whether, in order to assist demobilised soldiers, and to make further economies by reducing the number of the existing staff of medical men and others, he would arrange to allow demobilised soldiers who were in employment or starting in business to commute their pensions.—Mr. MACPHERSON replied: I am unable to accept my honourable and gallant friend's suggestion. It is not my policy, nor was it that of my predecessors, to encourage commutation of pensions, and I am convinced that to do so would be to cause many pitiable cases of destitution in the future. Final weekly allowances which are granted to soldiers who are only slightly disabled are on a somewhat different footing, and although commutation of these allowances cannot be generally permitted, it is possible for the Ministry to consider a very exceptional case where payment of a lump sum is clearly in the man's interests.

Refusal of Disability Pensions.

Mr. TREVELYAN THOMSON asked the Minister of Pensions whether, in view of the dissatisfaction caused by the refusal of pensions on the grounds that disability was alleged to be not due to war service, he would take steps to remodel the royal warrant so that any man who on discharge from the army was classified in a lower medical category than that in which he was placed on enlistment could on that account be deemed to have a prima facie case for a disability pension.—Mr. MACPHERSON replied: I am unable to accept this suggestion. Under the present practice each case is considered on its merits in the light of all the evidence available, and if the claim is rejected on the ground that the disability is not due to service the man has a right of appeal to an independent tribunal.—Mr. THOMSON: Can the right honourable gentleman infuse some of his well-known sympathy into the administration of his department in dealing with these cases?—Mr. MACPHERSON: I hope I always do so.—Mr. A. SHORT: Is the right honourable gentleman aware of the great dissatisfaction with the results of these appeals to the Appeal Tribunal, and can he explain why it is that such cases are referred to this tribunal?—Mr. MACPHERSON: The House decided that such cases were to be referred to an outside appeal tribunal. I have no responsibility for that tribunal, nor is it under my jurisdiction, but I am bound both in the interests of the pensioner and the taxpayer to accept its decisions.—Mr. SHORT: Will the right honourable gentleman make representations to the Cabinet on the matter?—Mr. MACPHERSON: I think that is for the House to do and not for me. I am myself very often a defendant in cases.

Health Precautions against Unhealthy Aliens.

Sir HARRY BRITTAIN asked the Prime Minister whether he was aware that large numbers of alien emigrants of the most unwholesome description were being regularly conveyed across England for trans-shipment to Atlantic ports; and whether, seeing that such visitors were liable to bring disease into this country, he could see his way to safeguard our own people by imposing some such regulations as existed, for example, at the port of New York.—Mr. SHORTT (Home Secretary) replied: No, Sir. I cannot accept the first paragraph as representing the facts. The aliens who pass in large numbers through the United Kingdom to America have already before their departure from the continent come under the operation of the regulations which the honourable Member has in mind. The shipping companies which carry them are liable to heavy penalties in America for every diseased alien whom they take there, and are also required by the American law to take such passengers away again. The companies are also obliged, under the terms of what are known as transmigrant bonds into which they enter with the British Government, to see that no such alien remains in this country. All this is in addition to the general precautions taken by the Ministry of Health under the Aliens Order and by port sanitary authorities against the introduction of disease into the United Kingdom.—Sir H. BRITTAIN: Who is it that examines these aliens from the Central European countries which in many cases are glad to get rid of them; and is it any satisfaction to this country; are the shipping companies that take them to the United States of America or Canada fined for taking these people there, when the damage has already been done; and lastly, may I ask, in reference to the right honourable gentleman's statement that all these things are in addition to what the sanitary and port authorities do, if these individuals walk direct from the boat to the train, what does that amount to?—Mr. SHORTT: They do not without proper examination by doctors.

Amendment of Lunacy Laws.

Mr. ALFRED DAVIES asked the Minister of Health if his attention had been drawn to a resolution passed by the committee of visitors by the Isle of Ely and Borough of Cambridge Mental Hospital; that in the opinion of the visitors the use of the terms pauper lunatic and pauper lunatic asylum should be discontinued, and that the Ministry of Health be asked to procure an amendment for the Lunacy Acts, substituting the terms patient and mental hospital; and whether, in view of this essential reform, he would give this matter his careful consideration.—Dr. ADDISON replied: I am in sympathy with the spirit of the resolution, but it would require considerable amendment of the Lunacy Acts to eliminate these terms altogether, and I am afraid that any substituted terms would tend to acquire the same associations.

Dental Legislation.

Captain WEDGWOOD BENN asked the Minister of Health if he could state when he proposed to reintroduce the Dental Bill, and what provisions it would include relating to the admission of unqualified dentists to the profession.—Dr. ADDISON replied: I am hoping to confer shortly with the various representative organisations concerned with a view to the introduction of the Bill as an agreed measure, but I am not at present in a position to name any definite date for its introduction.

FRIDAY, MARCH 11TH.

Typhus in Eastern Europe.

The House went into Committee of Supply on a supplementary vote for diplomatic and consular services, Mr. WHITLEY in the chair.

Mr. CECIL HARMSWORTH (Under Secretary for Foreign Affairs) said the question of the means that had been taken by the League of Nations to meet the situation in regard to typhus in Eastern Europe had been much in the mind of the medical world of Europe, and had been the subject of the most careful inquiry by the highest medical authorities. The matter had been the subject of a special mission sent by the League of Nations to the affected areas. All the authorities dwelt upon the devastating effects of the disease in Poland and Russia, and on the risk of its spreading to Western Europe. Finally, a report in the name of the Canadian delegate to the League of Nations was submitted to the Assembly at Geneva. The Committee stated that the epidemic condition of typhus in Poland and Galicia was very grave and constituted a distinct menace, especially to Eastern Europe and in general to the world at large; that the resources of mechanical and medical equipment of Poland, though hitherto employed in an excellent manner, were altogether insufficient successfully to cope with the conditions in Poland itself; that the infection of typhus was widely distributed in Russia and other countries adjoining Poland, and opportunities for its distribution were constantly and continually increasing; that urgent necessity existed for an immediate and adequate effort, participated in by all the nations of the world, successfully to combat a menace which was international and world-wide. At first it was proposed to proceed on a very elaborate scale, and it was estimated that a sum of not less than £3,500,000 would be required in order to institute a thoroughly satisfactory health system all along the eastern frontier between Poland and Roumania and Russia. It was, indeed, intended to establish a real *cordon sanitaire* all along this line, and appeals were made by the League of Nations, but he regretted to say that they met with comparatively little response. It was therefore decided that the greater scheme must remain in abeyance, and that what could be done with whatever funds could be got together should be done quickly. Dr. Buchanan, the Chief Medical Officer to the Board of Health, had expressed

no less strongly than any other medical authority the need for these remedial measures. He (Mr. Harmsworth) put himself in touch with Dr. Buchanan, who had written to him as follows:—

"The case is a very strong one. If typhus, and still more cholera, gets to be imported wholesale by the return of refugees, prisoners, &c., or by the resumption of ordinary traffic between Soviet Russia and the countries of the West, we have (*a*) constant risk of importation of infection in this country, and (*b*) serious epidemic conditions superadded to the distress, starvation, and other troubles of the parts of Central Asia which it is in everyone's interest to see settled."

Typhus, he understood, often developed a case mortality of no less than 40 per cent. The Polish Government had done everything that could reasonably be expected of it, but it was not purely a national question. In August last the Lord President of the Council was requested by the League of Nations to issue a special appeal. In the case of that appeal again it was to be regretted that the response was not as large as one could wish. Very considerable sums, however, had been voted and promised. Greece had given £10,000, Japan £5000, Switzerland £2000. The Government of Canada had promised £200,000. Persia had given £2000, Belgium £1000, and Siam £1000. France had not yet given anything. In the United States it was being considered, but it was not possible to make forward grants in anticipation of a decision of Congress. Spain had promised £40,000, Germany 1,000,000 paper marks, Holland 100,000 florins, China £2000, and Uruguay and Peru were also contributing. He thought that a sum approaching £225,000 was more or less available. As recently as January, 1919, there was a great outbreak of typhus in and about Rotterdam. From his information there were 823 cases and 100 deaths, so that even in what was acknowledged to be one of the cleanest countries in the world they had an outbreak of typhus. This work was eminently suited to the League of Nations.

Major C. LOWTHER moved to reduce the vote by £49,000. It seemed to him a tall order to call upon the taxpayers of this country to provide £50,000 for combating typhus in Poland when there was so much disease at home on which money could be spent.

Captain ELLIOT thought that Major Lowther had not fully realised the enormous value of the medical maxim that prevention was better than cure. If they could stamp out this disease at its focus they made a tremendous difference to the health of Europe, which meant the trade of our own country. Until 1900 they groped in the dark in the treatment of typhus. They thought it was due to dirt and overcrowding or famine, but they were not sure. Then they found that it was due to a louse which bit an infected man and then carried the germ to a healthy subject. One of the chief factors in spreading a typhus epidemic was the railway. The railways of South Russia had a great deal to do with the continuous spread of typhus in that country. Every train was a travelling pest-house, because on the trains travelled the lice. The man who went into one of those trains was going into a place as deadly as a den of rattle-snakes. How could they expect our traders to move freely in a country where the conditions of transport were such that a man entering a train was literally taking his life in his hands? This was not merely a Polish question, but a British question as well. This sum was in the nature of an investment. If we could extend credit for rolling-stock, cotton goods, and for rubber to these devastated countries, the extending of credit for health must be one of the most immediate and practical investments. They were quite satisfied in the medical world that this sum was being properly and efficiently expended. But they were not satisfied that there was that unity of command which was necessary for stamping out the disease. If the Under Secretary could give them an assurance on that point they would have still more pleasure in supporting him.

Sir J. D. REES repudiated the doctrine of Captain Elliot. He was sure that all the honourable Member said about typhus was perfectly true, and he realised that the healthier Europe was the better off was England. But that England should therefore sanitate all Europe was a totally different proposition. Could the British taxpayer afford these counsels of perfection?

Mr. HARMSWORTH said he would certainly look into the matter of the unity of control, and if it was thought necessary would respectfully direct the attention of the Secretary-General of the League of Nations to the representations that had been made by the House.

Dr. MURRAY said that we had practically got rid of typhus in this country, and when he heard people in that House and elsewhere grudging money for combating things of that sort he must say their zeal for economy was much misplaced. He hoped they were now laying the foundation for a great sanitary effort which would go on till this disease was eradicated in Poland.

Major LOWTHER withdrew his amendment and the vote was agreed to.

MONDAY, MARCH 14TH.

Medical Staff of Pensions Department.

Brigadier-General WIGAN asked the Minister of Pensions how many medical officers were employed by his department; what their daily hours of work were; how many equipped beds the Ministry had in hospitals; the number now occupied; and what the total annual cost per bed was inclusive of all charges.—Major TRYON replied: There are 325 whole-time administrative medical officers whose hours are 44 per week and 274 whole-time institutional medical officers who are employed upon no fixed hours, being liable for duty at any time. There are 251 part-time medical officers whose hours of employment average 12 weekly. Members of medical boards are drawn from a panel of 4462 doctors who are employed as required on a sessional basis. The Ministry also make use of specialists and medical referees, numbering 3616, who are paid by fee for examination and report. The number of equipped beds in hospitals is 12,976, of which 10,995 were occupied at the date of the last return. The total annual cost per bed averages £175.

Medical News.

UNIVERSITY OF CAMBRIDGE.—At a congregation held on March 11th the following degrees were conferred:—

M.D.—A. G. Evans, Trinity; R. R. Walker, St. John's.
M.B. and B.Ch.—E. P. Brockman, Caius.
M.B.—R. K. Merson, Emmanuel.

UNIVERSITY OF OXFORD: *Memorial to Sir William Osler.*—The fund to establish a memorial to the late Regius professor of medicine has now reached nearly £2000 and a list of subscribers will be published soon. Subscriptions may be sent to the honorary treasurer, Mr. A. P. Dodds-Parker, 2, Holywell, Oxford.

Diploma in Public Health.—The Board of the Faculty of Medicine gives notice that at the examinations for the Diploma in Public Health in Michaelmas Term, 1921, and afterwards the first part of the examination will comprise the Application of Chemistry and Physics to General Hygiene, and General Pathology with special relation to Infectious Diseases. The second part will comprise Practical Pathology and Bacteriology, General Hygiene, the Laws relating to Public Health, Sanitary Engineering, and Vital Statistics. The Examination in Michaelmas Term, 1921, will be conducted in accordance with a time-table published in the *University Gazette* for March 9th, 1921 (Clarendon Press, Oxford, 3*d*.). The effect of this announcement is to remove from Part 2 to Part 1 the examination in Systematic Pathology and Bacteriology; but to retain in Part 2 a practical and viva voce examination in those parts of the subject which are most closely related to public health.

Degree in Medicine.—At a congregation held on March 3rd the degree of Bachelor of Medicine was conferred on Philip Geoffry Doyne, Trinity College.

Degree days.—The following Degree Days are announced: To-day (Saturday), March 19th, at 10 A.M.; April 28th, May 21st, June 16th and 23rd, and July 9th, at 2.30 P.M.

UNIVERSITY OF EDINBURGH: TAIT MEMORIAL CHAIR.—The second chair of natural philosophy, promoted as a memorial to Professor Tait, will shortly be established. The funds collected before the war have recently been augmented, and the University Court have been able to arrange for the foundation of the Tait chair not later than the year 1925.

UNIVERSITY OF GLASGOW.—On March 11th Mr. Bonar Law was formally installed as Lord Rector of Glasgow University, and thereafter delivered his rectorial address on "Ambition, and the Qualities which make it Successful." He said that in the biographies of famous men it was constantly stated that they had in their youth set before them as their ambition some position which they afterwards attained. That was true, but it was forgotten that for each realised ambition there were very many unrealised ones. Life was an uncharted ocean, and there must always be uncertainty as to what would be found at the end of the journey. Mr. Bonar Law quoted the words of Cromwell: "He goes furthest who does not know whither he is going." Great men were not so much those who foresaw events as those who seized opportunities. Foresight was certainly a quality essential to success, but the possibilities of foresight were very limited and astute foresight was much rarer than was generally supposed. When a man seized the tide that led on to fortune he had only the vaguest idea of the nature of the voyage, or of the shore upon which he would finally disembark. The qualities essential to success were courage, hard work, the wish to succeed, and the love of good work for its own sake.

UNIVERSITY OF BRISTOL. — At examinations recently held the following candidates were successful :—

SECOND EXAMINATION FOR DEGREES OF M.B., CH.B.

Part II.—Hyne Catherine Barclay, Sydney H. Blacker, Arthur P. Bodman, Naomi Joan Bown, Ernest G. Bradbeer, Gilbert B. Bush, Ernest R. Clutterbuck, William L. Cossham, Mary Frances Dalton, Helen Mary Dixon, Robert H. Dummett, Lorna Dunn, Frank R. Edbrooke, Edward B. Eedle, Norman J. England, Herbert M. Golding, William A. Gornall, John L. Griffin, Rowland C. Hatcher, Alexander G. Heron, John A. James, Frederick G. Jenkins, Doris Ewing Joscelyne, Edgar F. King, Arthur H. Marshall, John R. Nicholson-Lailey, Arthur S. Prowse, Robert A. Sammons, Arthur E. Sherwell, Herbert Taylor, Robert E. Whitby, Cicely Faith Wilson.

Anatomy only (completing Examination).—George S. Mundy.

THIRD EXAMINATION FOR DIPLOMA IN DENTAL SURGERY.

Dental Anatomy only.—Robert H. Davies, Harold C. Hopes, Kenneth A. Hunt, Edwin H. Longney, Cyril G. Payne, Herbert W. Pidgeon, Montie Ritblat, Cecil R. Woods.

ROYAL COLLEGE OF SURGEONS OF ENGLAND: NEW FELLOWS.—An ordinary Council meeting was held on March 10th, Sir Anthony Bowlby, the President, in the chair. As the result of the Final Fellowship Examination, held from Feb. 11th to 19th, 19 candidates were approved and 30 were rejected. The following are the names and medical schools of the successful applicants upon whom the Council has conferred the diploma of Fellow :—

John Alban Andrews, Edinburgh and St. Bart.'s Hosp.; Lennox Ross Broster, Oxford Univ. and Guy's Hosp.; Victor Marcus Coppleson, Sydney Univ. and London Hosp.; Henry Evers, Durham Univ.; George Philip Buckingham Huddy, London Hosp.; James Alfred Jenkins, New Zealand Univ.; Roy Russell Kerr, Edinburgh Univ. and St. Bart.'s Hosp.; John Le Messurier Kneebone, Adelaide Univ. and London Hosp.; Charles John MacAuley, Dublin Univ.; Kenneth MacCormick, New Zealand Univ. and London Hosp.; George Perkins, Oxford Univ. and St. Thomas's Hosp.; Cyril Alban Raison, Birmingham Univ. and London Hosp.; Geoffrey Bower Richardson, St. Bart.'s Hosp.; Edward Stanley Smalpage, Sydney Univ. and London Hosp.; Henry James Drew Smythe, Bristol Univ. and London Hosp.; James Swan, Edinburgh Univ. and London Hosp.; Hugh Compson Trumble, Melbourne Univ. and London Hosp.; Cecil Pembrey Grey Wakeley, King's Coll. Hosp.; and John St. George Wilson, Liverpool Univ.

Licences in Dental Surgery were also conferred upon the following 38 candidates, who have passed the requisite examinations and have complied with the by-laws :—

J. H. Allwood, Liverpool Univ.; H. C. Apperly, Royal Dental; G. R. D. Bradfield, Guy's; L. H. Buchan, Bristol; E. Clark, Guy's; C. Cooke, London; J. M. Coplans, Edinburgh and St. George's; G. B. Cornwell, A. E. Croke, and J. W. Curtis, Royal Dental; F. W. Day and L. F. Fouraker, Guy's; C. H. Freeman, Royal Dental; F. D. Gratrix, Guy's; S. L. Hart, Univ. Coll.; A. L. Hyslop, P. Krige, and W. A. Krige, Guy's; E. H. Laurence, Univ. Coll.; F. H. E. Marston and T. A. Meldrum, Royal Dental; G. K. Moore, Guy's; H. S. H. Moore, Univ. Coll.; R. A. Moore, F. J. Myers, and F. D. Neal, Guy's; H. S. Paxton, Royal Dental; E. R. Pfaff, Bristol; H. K. Price, Guy's; A. Stafford, Sheffield; F. W. Stiven and G. M. Stuart, Guy's; M. H. G. Sturridge, Pennsylvania and Middlesex; C. S. Taylor, Durham and Royal Dental; W. A. Turner and H. C. Tweney, Guy's; C. P. M. Valette, Paris and Guy's; and J. W. E. Warren, Guy's.

A report was read from the Dentists Bill Committee, and although the Council was of the opinion that the Bill was unsatisfactory in some respects, it had reason to believe that as a whole it was approved by most members of the dental profession, and for that reason did not propose to take steps to have amendments introduced.—The President reported that, in pursuance of the provisions of the Bradshaw Bequest, he had appointed Mr. H. J. Waring as Bradshaw lecturer for the coming year.—A letter was read from Mr. Robert Lindsay, Dental Secretary of the British Dental Association, who forwarded for the consideration of the College a copy of a scheme for the institution of a Diploma in Public Dentistry. This scheme was drawn up by the Dental Service Committee of the Association and approved by its Representative Board for circulation to all Universities of the United Kingdom and to all dental licensing bodies. The matter was referred to the College Committee for consideration.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—At the monthly meeting of this Faculty held on March 7th the following were admitted (after examination) as Fellows of Faculty—viz., Dr. Samuel Saxon Barton (Liverpool), and Drs. Ronald Thomson Grant, Noah Morris, and James Russell (Glasgow).

FEDERATION OF MEDICAL AND ALLIED SOCIETIES.—The executive council of the Southampton Medical Parliamentary Committee has passed a unanimous resolution, which has been forwarded to us by the Federation of Medical and Allied Societies with a request for publication, to the effect that the council approves of the position adopted by the Federation in the formation of a body representative of the medical and allied professions.

THE Wellcome Historical Medical Museum will be closed for redecoration and cleaning from April 1st to 30th, inclusive.

TUBERCULOSIS SOCIETY OF GREAT BRITAIN AND IRELAND.—A meeting of this society will be held at Colindale Hospital, Hendon, to-day, Saturday, at 3 P.M., upon the invitation of Dr. Marcus Paterson, who will show members round the institution and give a short address. A clinical meeting of the society will be held in April and the honorary secretary, Mr. F. J. C. Blackmore, 39, Woodland-terrace, S.E. 7, will be glad to receive the names of members wishing to show cases. It is proposed to hold a post-graduate course in Paris at the latter end of May if a sufficient number of members join. Further information may be obtained from Dr. W. G. Dickenson, 1, Ridley Villas, Newcastle-on-Tyne.

RONTGEN SOCIETY.—A general meeting was held on Thursday, March 17th, at 8.15 P.M., in the Architecture Theatre, University College, Gower-street, London, W.C., when a paper on X Ray Dosage, with Special Reference to the Barium Platino-cyanide Pastille was read by Mr. E. A. Owen, D.Sc., and Miss Phyllis K. Bowes. A special meeting of the society will be held on Friday, May 6th, at 8 P.M., at the University of Manchester, when Professor W. L. Bragg will deliver a paper and Professor A. V. Hill will give a demonstration of some electro-physiological experiments. On the following day it is hoped to arrange visits to works of scientific interest in the district. The gallery of the Royal Photographic Society of Great Britain has been placed at the disposal of the society during June, when it is hoped that a collection of radiographs, illustrating the different practical applications of X rays, will be furnished by members of the society. The President of the society, Dr. Robert Knox, offers a special prize for work submitted by lay assistants engaged in the production of photographic results, working either as hospital assistants or as assistants in medical radiology. Members wishing to read papers or to show apparatus or lantern slides are requested to communicate with the honorary secretaries, Dr. R. W. A. Salmond, 51, Welbeck-street, London, W.1, or Dr. E. A. Owen, The National Physical Laboratory, Teddington, Middlesex.

NATIONAL INSTITUTE OF INDUSTRIAL PSYCHOLOGY. This institute, which was formed for the practical application of science to the human conditions of industry and commerce, has now been incorporated, and the first meeting of the council was held at 329, High Holborn, on March 3rd. The chair was taken by Mr. H. J. Welch of Messrs. Harrisons and Crosfield, Ltd., who referred to the influential support which had been given to the institute by many leading psychologists and physiologists, and by prominent men in industry and commerce. He referred to the three sections of the proposed work of the institute: Vocational guidance and selection, fatigue research, and movement study, the purpose of all of which, he said, was the elimination of human waste. The adaptation of scientific knowledge to the human factor in work would not only increase production at lower cost, but would also increase the happiness and contentment of mankind. He pointed out that the institute, was established to combine scientific research with practical work in commerce and industry. It was not established for profit, and all the fees received would be used to promote the objects of the institute. Dr. C. S. Myers, F.R.S., director of the Psychological Laboratory, Cambridge, who has been one of the moving spirits in the foundation of the institute, emphasised the necessity for careful research work and supported the chairman's statements as to the need for a practical application of the results of such work. The meeting was also addressed by Mr. Kenneth Lee, director of Tootal Broadhurst Lee Co., Ltd., Mr. Robert C. Witt, and others. An executive committee was appointed with power to manage the affairs and business of the institute generally, and to appoint subcommittees; a scientific committee has been appointed, which includes psychologists and physiologists from the Universities of Aberdeen, Birmingham, Cambridge, Edinburgh, Glasgow, Leeds, London, Manchester, and South Wales, and from various colleges and societies. It was announced that several firms were negotiating with the institute for the commencement of practical work in their factories, &c. The institute will depend for its income from three sources: (1) members' subscriptions; (2) donations; (3) fees for work done. A sum of £10,000 a year is required from the first two sources, and of this approximately £2500 a year for five years has already been promised. The subscription for membership of the institute for ordinary members is £1 per annum and for life members £25; members will be entitled to receive the periodical it is proposed to publish and any other literature issued from time to time. Full particulars and application forms for membership can be obtained from the secretary, Dr. G. H. Miles, at the offices, 329, High Holborn, W.C.1.

LONDON HOMŒOPATHIC HOSPITAL.—**The seventy-first annual general meeting** of this hospital was held on March 15th, Lord Cheylesmore, the President, in the chair. The President announced that the Duke of York had consented to become a patron. Lord Donoughmore, in moving the adoption of the annual report, reviewed the financial situation and reported that in consideration of the increasing difficulties attendant on the efficient administration of the hospital, they had, in common with many of the larger voluntary hospitals, instituted early in the year the system of patients' contributions. He announced further that a sum of £6450 had been received to date in response to the special appeal for £7690 required for long deferred repairs and essential alterations. The balance of £1240 had still to be raised, and Lord Dysart had promised the last £500 of this amount if the balance were subscribed by July 31st, 1921. The ordinary expenditure for the past year was £8885 in excess of the ordinary income, which, together with the accumulated deficits since 1916, had brought the total deficit to £17,702. Increased annual subscriptions are greatly needed and should be sent to the Treasurer, London Homœopathic Hospital, Great Ormond-street, London, W.C.1.

SCOTTISH BOARD OF HEALTH.—**An urgent circular** has been issued to local authorities by the Board on the need for economy. It is pointed out that in public health matters the present policy must be to restrict expenditure to immediate necessities, and developments which in normal times would be proper must be slowed down, all unnecessary items being eliminated. Existing premises should be improved rather than replaced by new accommodation, and rearrangement of present staff to meet requirements should be attempted. No fresh capital expenditure should be undertaken which can be postponed without material risk to the public health. In maternity and child welfare work expense should be reduced by encouraging voluntary service and by fixing suitable scales of payment for food and other supplies. In the case of sanatoriums approved, but not yet commenced, work should, as a rule, be postponed. Additional centres for the treatment of venereal diseases would be provided only where there was obvious deficiency. In terms of the Blind Persons Act local authorities should continue preparation of their schemes; these would be considered by the Board, but expenditure on new buildings would not be sanctioned easily. At present every inducement should be given to the continuance of voluntary effort.

LIVERPOOL ROYAL SOUTHERN HOSPITAL.—**The annual meeting** of this hospital was held on March 7th, Alderman E. Russell-Taylor, the Lord Mayor, in the chair. The annual report showed that during 1920 2157 in-patients were treated—a reduction of 183 on the previous year. The diminution was due to the return to the pre-war establishment of 218 beds as compared with an average of 230 beds in 1919. In the out-patient department the work had increased, there being 974 more new cases, involving 5656 additional attendances as compared with the previous year. The figures were: 1919, 70,593; and 1920, 76,249. A considerable amount of work was still being done for the Ministry of Pensions. During the year 97 ex-Service men were treated in the wards, and 5095 attendances were registered in the out-patient department. The V.D. department, the tuberculosis department, and the X ray and massage and exercise departments had all been increasingly used. The children's out-patient clinic, which worked in close association with the Invalid Children's Association, had become one of the best known clinics of the kind in the country. A trained woman—an official of the association—attended the clinic to instruct mothers concerning the dieting and general care of their babies, and other women engaged by the association visited the homes to continue this instruction. By these means the clinic had attained a high degree of efficiency in child welfare work. A special neurological department was established in July, 1920. The report[1] showed that the ordinary income was £2948 above that of the previous year—every source of income having shown an increase except the receipts in respect of ex-Service men. But, owing to the increased cost of commodities and the expenditure on long delayed works of cleaning and repair, the ordinary expenditure was £7030 above that of last year. The total ordinary income was £36,983, and the total ordinary expenditure was £24,361. A grant of £7500 was received from the Lord Mayor's Special Appeal Fund, but the amount from legacies was only £1807 as compared with £14,335 in 1919. There had been an increase in payments by, or in respect of, patients of £4652. Part of this very satisfactory improvement was due to the appointment of an almoner.

[1] The concluding portion of this paragraph was attached last week in error to a paragraph dealing with the Liverpool Royal Infirmary. We repeat it now in its correct context.—ED. L.

UNIVERSITY OF LONDON.—**At a meeting of the Senate** held on March 16th the question of closing the Physiological Laboratory at South Kensington was again considered, and it was resolved to continue the laboratory until the end of the session 1922–23.

NORTH-EAST LONDON POST-GRADUATE COLLEGE.—A special post-graduate course, adapted to the needs of the medical man in active practice, will be held at the Prince of Wales's General Hospital, N.15, from Monday, April 25th, to Saturday, May 7th. It will include each day demonstrations of clinical and laboratory methods in the morning, and in the afternoon demonstration of groups of selected cases and either a clinical lecture or a clinical consultation. Demonstrations will also be given in associated special hospitals. A syllabus will be issued in due course, and will be sent on application to the Dean.

HOSPITAL CONDITIONS IN BRISTOL.—**At the annual meeting** of the Bristol General Hospital on March 14th it was stated that the total number of in-patients had been 4031, a record number, and of out-patients 27,049. The income had been £26,000, an increase of 10 per cent. on the previous year, but the expenditure had advanced by 20 per cent. to a total of £45,000. To meet this very serious deficiency a system of collecting payments from patients, which was still under discussion with the committee of the Bristol Royal Infirmary, would probably be adopted. Similar financial difficulties were reported at the annual meetings of the Children's Hospital and the Eye Hospital. At the latter there was urgent need for a rebuilding scheme, but this appeared to be out of the question at the present juncture. Some allusion was made at the General Hospital meeting to the possibility of combination between the institutions, but it did not appear that any formal agreement was at present contemplated.

THE LATE DR. E. H. BUCKELL.—**Ernest Hook Buckell**, who died recently at his residence in Chichester, was in his sixty-ninth year, being the second son of the late Dr. Leonard Buckell of the same city. He came from a medical family and was educated at Epsom College, whence he proceeded to University College Hospital. Here he qualified, after a successful career as a student, in 1875, since which time he practised in Chichester and the district, succeeding his father as medical officer to the Bishop Otter Memorial College and the Chichester Poor-law Institution, as well as in an extensive private practice. For over 30 years he was honorary physician to the Chichester Infirmary (now the Royal West Sussex Hospital), and, resigning in 1919, was appointed honorary consulting physician. He founded the X ray department at that hospital, and its present state of efficiency is due to his work of some years ago. He was President of the Chichester and Worthing Branch of the British Medical Association in the same year. He will be greatly missed by the poor of the city and district, for his personal acts in relief of distress were numerous and extensive, and his devotion to duty great. He took a keen interest in public affairs and was for many years a member of the city council and also a justice of the peace for the city. To mourn their loss he leaves a widow and four daughters, one of whom married her father's successor in the practice, Dr. Walter Dick, and two sons, Dr. Ernest Buckell, who practises at Newport, Isle of Wight, and Dr. Aston Buckell, who is assistant bacteriologist at Durham University.

BOOKS, ETC., RECEIVED.

APPLETON, D., AND CO., London and New York.
The Psychology of Functional Neuroses. By H. L. Hollingworth. Pp. 260. 10*s.* 6*d.*

ARNOLD, EDWARD, London.
A Manual of Cookery. By Florence A. George. Pp. 448. 8*s.* 6*d.*
Medicine for Nurses. By John Henderson, M.D. Pp. 263. 8*s.* 6*d*

BELL, G., AND SONS, London.
The Mother and the Infant. By Edith V. Eckhard. Pp. 256. 6*s.*
The Boy in Industry and Leisure. By the Rev. R. R. Hyde. Pp. 281. 6*s.*
A Guide to the Preparation of a Note-book of Biology. By E. W. Shann, B.Sc. Pp. 48. 2*s.* 6*d.*

CHEMICAL CATALOG CO., New York.
The Chemistry of Enzyme Actions. By K. G. Falk. Pp. 136.

COLLEGE OF PHYSICIANS, Philadelphia.
The S. Weir Mitchell Oration. By C. W. Burr, M.D. (November, 1919). Pp. 31.

HODGE, WILLIAM AND CO., London and Edinburgh.
Trial of Thurtell and Hunt. Edited by E. R. Watson, LL.B. Pp. 217. 10*s.* 6*d.*

JOHNS HOPKINS PRESS, Baltimore.
Public Health and Insurance. American Addresses by Sir Arthur Newsholme, K.C.B., M.D. Pp. 270. $2.50.

KEGAN PAUL, TRENCH, TRUBNER, AND CO., London.
The Problem of the Nervous Child. By Elida Evans. With introduction by C. G. Jung, M.D. Pp. 299. 12*s.* 6*d.*
Psycho-analysis and Behaviour. By André Tridon. Pp. 354. 10*s.* 6*d.*

KIMPTON, HENRY, London.
Block Anæsthesia and Allied Subjects. With special chapters on the Maxillary Sinus, the Tonsils, and Neuralgia of the Nervus Trigeminus. By A. E. Smith, M.D. Pp. 895. 90s.

LONGMANS, GREEN, AND CO., London.
The Physiology of Protein Metabolism. By E. P. Cathcart, M.D. Pp. 176. 12s. 6d.
Hygiene. By J. Lane Notter and R. H. Firth. 9th ed. Pp. 540. 10s. 6d.

MACDONALD, ERSKINE, London.
Lays by the Way. By R. B. Greaves, M.D. Pp. 72. 3s. 6d.

MALOINE, A., ET FILS, Paris.
Traité de Pathologie Médicale et de Thérapeutique Appliquée, publié sous la direction de Emile Sergent, L. Ribadeau-Dumas, et L. Babonneix. Tome IX., Glandes Endocrines et Sympathique. Par MM. Lereboullet, Harvier, Guillaume, et Carrion. Fr.18.
Traité de Pathologie Médicale et de Thérapeutique Appliquée. Tome XXVIII. Hygiène and Régimes. Par MM. G.-H. Lemoine, Médecin Inspecteur Général, et F. Rathery, Professeur agrégé à la Faculté de Médecine. Pp. 590. Fr.28.

MARLBOROUGH AND CO., London.
Serbo-Croatian Self-taught. By J. J. R. O'Beirne. Pp. 112. 4s.

MILFORD, HUMPHREY (OXFORD UNIVERSITY PRESS), London.
Le Droit International Public Positif. Par J. de Louter, Professeur de Droit International Public a L'Université D'Utrecht. Dotation Carnegie pour la Paix Internationale. Tome I., pp. 576; Tome II., pp. 590. 22s. per vol.

ROCKEFELLER FOUNDATION, New York.
Annual Report of the Rockefeller Foundation. 1919. Pp. 449.

ROUTLEDGE, GEORGE AND SONS, London.
Germination in its Electrical Aspect. By A. E. Baines. Pp. 186. 12s. 6d.

ST. CATHERINE PRESS, Stamford-street, London.
This Concerns You. An article written for the Hon. Nathan Straus, of New York. Pp. 16. 2d.

SHAW AND SONS, London.
Clinical Disorders of the Heart Beat. A Handbook for Practitioners and Students. By T. Lewis, M.D., F.R.S. 5th ed. Pp. 128.

UNWIN, T. FISHER, LTD., London.
Why do we Die? By T. Bodley Scott, M.R.C.S. Eng., L.R.C.P. Ed. Pp. 123. 6s.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Monday, March 21st.

SECTION OF ODONTOLOGY: at 8 P.M.
Paper:
Mr. J. G. Turner: Dental Sepsis in Relation to Rheumatism and Allied Conditions.

Tuesday, March 22nd.

SECTION OF MEDICINE: at 5.30 P.M.
Papers:
Dr. Parkes Weber: Thrombosis of the Inferior Vena Cava and both Renal Veins.
Dr. Nathan Raw: The Treatment of Tuberculosis with Attenuated Tubercle Vaccines.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.
MONDAY, March 21st.—8 P.M., Cantor Lecture:—Major G. W. C. Kaye: X Rays and their Industrial Applications. (III.)

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.
MONDAY, March 21st.—2 P.M., Dr. S. Pinchin: Medical Out-patients. Dr. Simson: Diseases of Women. 2.30 P.M., Dr. A. Saunders: Visit to Medical Wards. Mr. Baldwin: Visit to Surgical Wards.
TUESDAY.—10 A.M., Mr. Steadman: Dental Department. 2 P.M., Dr. Burnford: Medical Out-patients. Mr. Banks Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Mr. Addison: Visit to Surgical Wards.
WEDNESDAY.—10 A.M., Mr. MacDonald: Genito-Urinary Department. 2 P.M., Mr. D. Armour: Visit to Surgical Wards. Mr. Sinclair: Surgical Out-patients. Mr. Gibb: Eye Department.
THURSDAY.—2 P.M., Mr. B. Harman: Eye Department. Mr. MacDonald: Surgical Out-patients, Mr. Baldwin: Orthopædic Department. Mr. D. Armour: Operations.
FRIDAY.—10 A.M., Dr. Robinson: Gynæcological Operations and Visit to Wards. Dr. McDougal: Electrical Department. 2 P.M., Mr. T. Gray: Surgical Out-patients. Dr. Morton: X Ray Department. Dr. Pernet: Skin Department. 2.30 P.M., Dr. Pritchard: Visit to Medical Wards.
SATURDAY.—10 A.M., Dr. A. Saunders: Medical Diseases of Children. 2 P.M., Dr. Owen: Medical Out-patients.
Daily:—10 A.M. Ward Visits. 2 P.M., In-patient, Out-patient Clinics and Operations.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westmoreland-street, W.
MONDAY, March 21st.—5.30 P.M., Post-Graduate Lecture:—Dr. F. W. Price: Heart Block.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.
TUESDAY, March 22nd.—4.30 P.M., Lecture:—Dr. D. E. Core: Some Principles in the Treatment of Neurasthenia.

Appointments.

GOODWIN, A., M.D., F.R.C.S., has been appointed Pathologist to the Chelsea Hospital for Women.

HIRSCH, C. T. W., late Captain, R.A.M.C., M.R.C.S., L.R.C.P., Anæsthetist to the Hospital for Epilepsy and Paralysis, Maida Vale.

JOHNSTON, W. H., M.D., F.R.C.S. Edin., Medical Superintendent to Highbury, Uffculme, and Sorrento Hospitals, Birmingham.

RICHARDS, H. A., B.Ch. Cantab., Junior Anæsthetist and Assistant Instructor in Anæsthetics to King's College Hospital.

Certifying Surgeons under the Factory and Workshop Acts: PIRRIE, R. R., M.D. Durh. (Eastbourne); BANKES-PRICE, H., M.R.C.S., L.R.C.P. Lond. (Chipping Campden); HOGAN, W. L., M.B., B.Ch. Dub. (Warminster); COULSON, T. E., M.D., Ch.B. Edin. (Wincanton); WILLIAMS, W. H., M.R.C.S., L.R.C.P. Lond. (Monmouth).

Vacancies.

For further information refer to the advertisement columns.

Aylesbury, Royal Bucks Hospital.—H.S. £200.
Birmingham General Hospital.—Asst. Visit. Anæsth. £50.
Birmingham, Rubery Hill and Hollymoor Mental Hospital.—Jun. Asst. M.O. £400.
Birmingham, St. Chad's Hospital.—Res. M.O. £100.
Birmingham, Queen's Hospital.—H.P.'s, H.S.'s, Obstet. and Ophth. H.S., and Cas. H.S. £90 each.
Blackburn and East Lancashire Royal Infirmary.—Third H.S. £250.
Central London Ophthalmic Hospital, Judd-street, W.C.—Path. £75.
Charing Cross Hospital, Agar-street, W.C.—Surg. Registrar. £150.
Chelsea Hospital for Women, Arthur-street, Chelsea, S.W.—H.S. £120.
City of London Hospital for Diseases of the Chest, Victoria Park, E. H.P. £100.
Darenth Training Colony.—Jun. Asst. M.O. £422.
Dewsbury and District General Infirmary.—H.S. £250.
Dewsbury County Borough.—Asst. Sch. M.O. and Asst. M.O.H. £500.
Dumfries, Crichton Royal Mental Hospital.—Clin. Path. £400.
Durham County Education Committee.—Asst. Oculist. £600.
Ealing Borough.—Asst. M.O.H. £500.
East London Hospital for Children and Dispensary for Women, Shadwell, E.—Anæsth. £50. Also Ophth. S.
Glamorgan County Asylum, Bridgend.—Jun. Asst. M.O. £415.
Great Northern Central Hospital, Holloway, London, N.—P. Also Anæsth. £10 10s.
Greenwich, "Dreadnought" Hospital.—H.S. £150.
Guildford, Royal Surrey County Hospital.—H.S. £150.
Hospital for Epilepsy and Paralysis, Maida Vale, W.—Med. Registrar. £100.
Hospital for Sick Children, Great Ormond-street, London, W.C.—Asst. Cas. M.O., H.S., and H.P. £50 each.
Hospital for Women, Soho-square, W.—Clin. Assts. to Out-patients.
Huddersfield Royal Infirmary.—Sen. H.S. £250. Two Jun. H.S.'s. £150.
Leicester Royal Infirmary.—H.P. £200.
Lewisham, St. John's Hospital.—H.S. £150.
Lincoln County Hospital.—Jun. H.S.—£150.
London Homœopathic Hospital, Great Ormond-street and Queen-square, Bloomsbury, W.C.—Two Res. M.O.'s. £100.
Manchester, Ancoats Hospital, Mill-street.—Med. Registrar and Surg. Registrar. £100 each. Res. Surg. O. £250. Res. H.P. £200. Anæsth. 10s. 6d. per attendance.
Ministry of Pensions Hospital, Cannock Chase, Hednesford, Staffs.—S. £600.
National Hospital for the Paralysed and Epileptic, Queen-square, W.C.—H.P. £150. Asst. P.
Newcastle-upon-Tyne City Mental Hospital, Gosforth.—Jun. Asst. M.O. £350.
Newport, Mon., Royal Gwent Hospital.—H.S. £200.
Norfolk Education Committee.—Asst. Sch. M.O. £500.
Northampton General Hospital.—H.S. £200.
Nottingham.—Asst. to City Pathologist. £500.
Nottingham City Asylum.—Sec. Asst. M.O. £400.
Oldham Royal Infirmary.—H.S. £200.
Paisley Parochial Hospital Lunatic Wards and Poorhouse, Craw-road.—Res. P. £300.
Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—Cas. H.S., Asst. Cas. O., and H.P.'s. £100.
Rotherham Hospital.—Jun. H.S. £150.
Royal London Ophthalmic Hospital, City-road, E.C.—Refraction Asst. £100.
St. Bartholomew's Hospital Medical School.—Chair of Anatomy. £900.
Salford Royal Hospital.—H.S.'s, and Cas. H.S. £150.
Salop County Council, Medical Inspection of School Children, Maternity, and Child Welfare.—Asst. M.O. £517 10s.
Samoan Medical Service.—Three Jun. M.O.'s. £600.
Sheffield Royal Hospital.—H.S. and Asst. Cas. O. £150.
Sheffield Royal Infirmary.—H.S. £150. Ophth. H.S. £150.
Southampton Free Eye Hospital.—Asst. Hon. Ophth. Surg.
South Shields, Ingham Infirmary and South Shields and Westoe Dispensary.—Jun. H.S. £175.
Swansea County Borough.—Asst. M.O. £500.
Tiverton Hospital.—H.S. £100.
Wakefield, Clayton Hospital.—Sen. H.S. and Jun. H.S. £250 and £200.
Western Dispensary, 38, Rochester-row, Westminster, S.W.—Res. M.O. 100 guineas.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Oldham and at Manchline.

Births, Marriages, and Deaths.

BIRTHS.

DEBENHAM.—On March 6th, at The Crescent, Scarborough, the wife of L. S. Debenham, M.B., B.S., B.Sc., of a son.

MCCALL.—On March 10th, at Malton, Yorkshire, the wife of H. Dundas McCall, M.R.C.S., L.R.C.P., of a son.

WHITEHOUSE.—On March 13th, at Wickham-road, St. John's, S.E., the wife of W. H. Whitehouse, M.D., of a son.

MARRIAGES.

GWYN-DAVIES—GREENWOOD.—On the 28th February, at Holy Trinity Church, Folkestone, W. L. Gwyn-Davies (late Captain, R.A.M.C.), to Elvira, only daughter of W. Greenwood, Esq., Barrister-at-Law, of Folkestone.

WILLIAMS—COLLEY.—On March 15th, at St. Mary the Virgin, Speldhurst, Kent, Gwilym Ambrose Williams, B.A., M.R.C.S., L.R.C.P., to Dorothy, younger daughter of the late Robert Colley, of Paddington, and Mrs. Colley, Speldhurst.

YEO—DEWAR.—On March 12th, at St. John's Presbyterian Church, Kensington, Kenneth John Yeo, M.A., M.R.C.S., L.R.C.P., to Sheila, younger daughter of the late David Douglas Dewar and of Mrs. Dewar, Bourne End Cottage, Boxmoor, Herts.

DEATHS.

BRADLY.—On March 15th, at Crowborough, Norman Bradly, M.D., aged 36.

HOLLIS.—On March 12th, at Redenhall, Harleston, Norfolk, Harry Hollis, M.D., late of Wellingborough, aged 52.

STOREY.—On March 10th, at Southdene, Dunstable, James Alexander Storey, L.R.C.S.I. and L.R.C.P.E., late of The Lawn, Dunstable, aged 72.

SYMONS.—On March 11th, at Trevalga, Lansdown-parade, Cheltenham, John Trehane May Symons, Brigade Surgeon, M.D., in his 88th year.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Communications, Letters, &c., to the Editor have been received from—

A.—Dr. R. E. Apperly, Lond.

B.—Dr. A. M. Barford, Chichester; Dr. L. Boudreau, Bordeaux; Mr. G. N. Biggs, Lond.; Sir J. Bland-Sutton, Lond.; Dr. L. S. Burrell, Lond.; Board of Control, Lond.; Mr. H. W. Bayly, Lond.

C.—Dr. T. Campbell, Ilkley; Dr. A. E. Carver, Torquay; Dr. H. P. Cholmeley, Forest Row; Dr. A. E. Chisholm, Dundee; Dr. F. G. Chandler, Lond.; Dr. G. H. Clark, Glasgow; Dr. F. G. Cawston, Durban; Prof. E. L. Collis, Cardiff.

D.—Dr. E. Drybrough-Smith, Shebbear; Dr. W. Dyson, Manchester; Dr. D. S. Davies, Bristol.

E.—Mrs. M. L. Eyles, Milford.

F.—Mr. E. R. Flint, Leeds.

G.—Sir H. Gauvain, Alton; Mr. H. Gardiner, Lond.; Dr. A. Goodwin, Lond.; Dr. A. M. H. Gray, Lond.; General Medical Council, Lond.; Great Northern Central Hospital, Lond., Sec. of.

H.—Prof. W. Hall, Bristol; Prof. H. Head, Lond.; Harveian Society of London, Hon. Sec. of; Dr. E. Harding, Lond.; Dr. J. B. Hurry, Reading.

I.—Institute of Hygiene, Lond., Sec. of; International Labour Office, Lond.

J.—Messrs. W. Judd, Lond.; Col. H. E. R. James, Lond.

K.—Mr. W. H. Kesteven, Kingston-on-Thames; Messrs. Kegan Paul and Co., Lond.; Mrs. A. L. Kaye, Manchester; King's College Hospital, Lond.; King Edward's Hospital Fund for London.

L.—Dr. R. Larkin, Lond.; Dr. E. M. Little, Lond.; London Lock Hospital, Sec of; Dr. G. C. Low, Lond.; London Homœopathic Hospital.

M.—Mr. J. B. Macalpine, Manchester; Dr. J. W. McLeod, Leeds; Dr. T. W. Mitchell, Hadlow; Middlesex Hospital Medical Society, Lond., Hon. Sec. of; Dr. E. Morton, Lond.; Mr. A. W. Matthew, Lond.; Ministry of Pensions, Lond.; Mr. C. J. Marshall, Lond.; Mr. H. W. G. MacLeod, Lond.; Sir J. MacAlister, Lond.

N.—National Institute of Industrial Psychology, Lond.; Dr. H. L. Noel-Cox, Lond.; Nurses' Co-operation, Lond.; National Health Week, Lond., Press Committee of.

P.—Dr. R. H. A. Plimmer, Aberdeen; Dr. A. T. Pitts, Lond.; Dr. E. E. Prest, New Cumnock; Mr. K. Q. Papafio, Accra; Dr. V. Pauchet, Paris; Messrs. Parke, Davis and Co., Lond.

R.—Mr. J. H. Ryffel, Lond.; Mr. H. Rundle, Southsea; Royal Society, Lond.; Royal Institute of Painters in Water Colours, Lond.; Dr. J. R. Rees, Lond.; Dr. H. Roberts, Lond.; Royal Medical Benevolent Fund, Lond.; Royal Faculty of Physicians and Surgeons, Glasgow, Sec. of; Mr. B. W. H. Rycroft, St. Andrews; Royal Free Hospital, Lond.; Miss E. A. Rout, Lond.; Royal Mail Steam Packet Co., Lond.; Dr. A. Rollier, Leysin; Royal Society of Medicine, Lond.

S.—Lt.-Col. J. H. Stanley, Lond.; Dr. Marie Stopes, Leatherhead; Mr. W. J. Y. Stevens, Lond.; Mr. H. W. Southcombe, Kingston-on-Thames; Mr. W. M. Scott, Bridgwater; Dr. I. D. Suttie, Glasgow; Dr. A. Spence, Lond.; Mr. G. Squeir, Hove.

T.—Dr. A. H. Thompson, Lond.; Major A. T. Todd, R.A.M.C.; Tuberculosis Society of Great Britain and Ireland, Lond., Hon. Sec. of.

U.—United States Public Health Service, Washington.

V.—Messrs. Vickers, Lond.; Dr. M. Vlasto, Lond.; Mr. H. W. Verdon, Lond.

W.—Dr. L. Williams, Lond.; Dr. S. I. Welsh, Lond.; Mr. R. A. Woodhouse, Romford; Dr. A. J. Whiting, Lond.; Dr. C. M. Wenyon, Lond.; Wellcome Historical Medical Museum, Lond., Curator of; Mr. S. R. Wilson, Manchester.

Y.—Dr. A. G. Yates, Sheffield.

Communications relating to the editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, London W.C. 2.

Notes, Short Comments, and Answers to Correspondents.

THE IDEAL ELEMENT IN MEDICINE,[1] ILLUSTRATED BY THE LIFE OF JOHN HUNTER.

BY H. H. BASHFORD, M.D., B.S. LOND.

I MUST first of all thank you for the unexpected honour that you have done me in asking me to read this annual paper; and, at the same time, I must ask you to forgive me for not bringing with me anything at all original. But we are here primarily, I suppose, to do homage, to commemorate rather than to create, and there is no figure, perhaps, that has more worthily embodied what I have ventured to call the ideal element in medicine than the Scottish farm-boy in whose name this ancient society meets and has its being. That must be my excuse for embarking on what is obviously a dangerous topic. For most of us here, I suppose, are Anglo-Saxons, and it has been shrewdly said of the Anglo-Saxon that his genius has consisted in perceiving just how much of an ideal is comfortably workable. In the pursuit of abstract truth or social liberty he has generally been content to stand aside and let the more ardent and easily moved nations make the sacrifices of the pioneer; and the deduction from that is that, in any body of Englishmen, there will always probably be a considerable proportion that looks upon ideals and idealists with a rather grave suspicion.

It is also dangerous for another reason, to which I am a little diffident in referring. But some of you may recall that in a recent play a somewhat cruel test was propounded. Have you noticed, it was asked, how young the policemen look? Well, gentlemen, that is an observation that most of us here, I am afraid, must have made; and it was stated by the playwright—a member of our profession—to be an infallible sign of the presence of middle age; and middle age, as we have all been told, is the deathbed of idealism. But we have not always been middle aged, and there are crowding in behind us, and perhaps even looking to us for guidance, those younger men and women who are desirous of dedicating their lives to the Science and Art of Medicine.

The Doctor as Artist.

I am rather sorry that just at present we hear so little of Medicine as an art, since it is chiefly, I think, as we regard it from this standpoint that its ideal element becomes manifest. For, though Art has never yet, perhaps, been successfully defined, it is in any case a giving-out, a yielding-up, an expression—the concrete acknowledgment, in some shape or other, of the god-like privilege of consciousness. The true artist, whether he would or not, is thus always an altruist; and, though he is ever in pursuit of an ideal that he may never attain, he is yet the happiest man alive, whether renowned or obscure; and it is pleasant to think, and surely it is true, that, in a large proportion of cases, it is this embryo artist in them that is compelling our successors towards the arms of medicine.

About that there are probably many of you here far better qualified to speak than I. But the fact remains that somehow and somewhen Medicine has taken this high step; that it has assumed the distinction, and therefore the obligations, conferred by the banner of Art; and that it has thereby proclaimed in itself an ideal element lacking which it must surely die. That is why we may assume perhaps—even the most disillusioned of us—that it is still recruiting the young idealist; and why it may be not uninteresting, just for two or three minutes, to reflect upon the condition in which he will find it. In the contemporary life of our community to-day, in the minds and affections of our fellow men, in what sort of position, in what kind of regard will he find this great art of ours and its practitioners?

The World when Hunter was Born.

Well, there is no better way, perhaps, of answering such a question than to use the method of comparison; and it is one of the advantages of an occasion like this, when we meet to commemorate a great man dead, that we find in his person a past milestone naturally provided, as it were, for the purpose. Let us glance, therefore, for a brief moment at the world into which Hunter was born, and the sort of part in it then played by the physician and surgeon. He was, as you know, born in 1728, 21 years after the union between Scotland and England, but only 13 since a Scottish army had invaded England as far south as Preston. George II. was

[1] Being the annual oration of the Hunterian Society delivered on Feb. 16th, 1921.

on the throne, and it is interesting at the present moment to recall that we were then united with France and Prussia in a triple defensive alliance. Both in India, indeed, and North America, the territories of France were more extensive than our own. The Cape of Good Hope was in the hands of the Dutch. Spain was predominant in South America, and only one ship a year was officially allowed to trade between this country and her pacific ports. Isaac Newton had been dead a year; Defoe was still living; Johnson and Sterne were in their teens, and Henry Fielding had just come of age; John Wesley was 25; Voltaire was in England as an honoured guest; Pope was publishing his Dunciad; and it was the year in which Swift lost his Stella.

Hunter was born, as you will also recollect, about seven miles from Glasgow, then a little country town about the size of Banbury, and six days' journey from London in a fast chaise. By more usual methods the journey took nearly a fortnight, but a daily horse-post had just been instituted, the arrival of the postman from Edinburgh, at six every morning, being signalised by the firing of a gun. The chief industry of the town was weaving, and it had already made a small reputation for the production of blue and white check handkerchiefs, a novelty not long introduced from Germany. Many of these linen goods were shipped abroad, chiefly to the North American colonies, and the Glasgow merchants were making fortunes out of the tobacco that their ships brought back. They owned between them about a score of these ships; the first home-made one was already ten years old; and their total tonnage amounted to about one-ninth of that of the *Olympic* or *Aquitania*. There were also, I believe, 300 yards of pavement, upon which these merchants would take the sun, where doubtless the little Hunter looked with admiring eyes upon their cocked hats and scarlet coats.

But Glasgow was not typical of a country where payment in kind was still almost universal, although the paper money of the new Bank of Scotland was beginning to supply a crying need, and the union with England had already begun to react in an increased prosperity north of the border. Both countries still remained, however, predominantly agricultural, although the first stirrings of the coming industrial era were now beginning to be felt. Liverpool, for example, had just completed its first dock, and there were already 50 streets in Birmingham. But the day of the factory had scarcely dawned; industry, such as it was, remained chiefly domestic; and these islands slept, perhaps happily unconscious of all that lay hidden in their coal and iron. Roads were scarce, and a Scottish gentleman desirous of travelling from Edinburgh to London would have found no turnpike beneath the wheels of his carriage until he arrived at Grantham. It would have been highly necessary for him to be well armed, and the cost of the journey, had he desired a reasonable comfort, would have been equivalent in modern money to that of a first-class ticket to Australia to-day.

Social Conditions and Conventional Beliefs.

Throughout the journey he would have been passing through a country of which the majority of the people could neither read nor write; wherein even the humanest could watch with equanimity a lad swinging on the scaffold for the theft of a shilling; and at his destination, if he had chanced to refresh himself at Lloyd's coffee house in Abchurch-lane, he would have met godly and generous merchants who were making their fortunes out of the African slave trade. As a Lowland Scot he would probably have been brought up in a lively apprehension of hell-fire, and the memory would have been fresh in his mind of the sentence of death passed only the year before upon a woman in Sutherland for having ridden upon the back of her daughter, who had been changed into a pony and shod by the devil. Had he postponed his journey till Hunter was six years old he might have been reading in his carriage the latest treatise on law by Professor Forbes, of Glasgow, in which he distinguished black witches, who did harm, from white witches, who performed cures, in both cases owing to their intimacy with the powers of darkness. Both he and the professor would probably have believed themselves, as members of the human race, to have been the products of a separate and special act of creation, and to have been the inhabitants of a world—according to the accepted notation of Bishop Ussher of Armagh—5732 years old.

I say probably because, like all ages, this early eighteenth century was transitional; and a picture confined to the little minority of the educated, travelled, and governing classes—and especially, perhaps, south of the border—would reveal a somewhat different mental environment. Tired and contemptuous of the theological quarrels of a couple of generations earlier, the prevailing habit of thought in these smaller circles was sceptical, tolerant, and lazily amenable to the newer speculations that had arisen from the researches of Copernicus, Kepler, and Newton. Largely recruited from these classes, the Anglican clergy—or at any rate their beneficed ranks—offered no very heart-felt opposition, and, indeed, to a great extent shared both in their relatives' materialism and the moral slackness that had resulted from it. This was the little but powerful England, of which Sir Robert Walpole was a representative figure. It was the England that was to shine through the letters of Chesterfield, then our ambassador at The Hague; it was the England of Squire Western, soon to be pictured for us in immortal colours by Fielding; and it was the England that provoked, just as it was to temper, the crusades of John Wesley.

But it was not from this small and privileged society that the majority of doctors was then recruited, and that is why, perhaps, the weeds of mediævalism still clung so perceptibly about their practice. Finally divorced from the ranks of the clergy and the jealous control of the Church, their recognition as members of an independent, authoritative, and learned profession was still far from complete. That was, perhaps, even more the case in these islands than in many parts of the continent, and especially, at the moment, in Holland, Italy, and France.

Great Men of the Time.

Here and there, no doubt, in every country particular men were standing out, men whose gifts had already procured for them a wide academic and social influence. Much the best known of these, in the popular sense, was, of course, the famous Boerhaave, then in the zenith of his activities at the University of Leyden, and perhaps the most sought-after physician of his own age or any other. There was probably well marked in him the quality that we have learned to describe in these days as "bluff." But he seems to have been a kindly and painstaking teacher, and possibly, indeed, the founder of modern clinical instruction. He it was to whom, without question, there is said to have been delivered a letter from the Emperor of China, merely bearing an address to the most famous physician in Europe; and he is also reported to have kept Peter the Great waiting a whole night for a consultation. Other great figures in the year of Hunter's birth were the surgeon Georges Mareschal, of Paris, with his record of eight lithotomies successfully performed in half an hour, Hoffmann at Halle, and Stahl at Berlin. But for the most part, and in every country, the village ancient and the strolling cure-monger still plied a trade often scarcely distinguishable from that of the more official medical practitioner.

Thus in Hunter's own country, at the time of his birth, all that was required before qualification—before the conferring, that is to say, of the title of surgeon apothecary—was a three years' apprenticeship to some surgeon apothecary already in practice, who was himself, in too many cases, a deeply ignorant person. The candidate had then to appear before the College of Barbers and Surgeons—the barbers, by the way, had recently dropped out—when he would be required to dissect a part, write a thesis, and make up a prescription. With regard to drugs, the properties of quinine and mercury were by then, of course, pretty well known; but the average prescription of 1728 affords plenty of evidence of the enormous ascendancy tradition still held over accurate observation.

A Popular Physician.

Perhaps the most popular physician, for example, then in Scotland was a Dr. Clark of Edinburgh, a man who was able, like his more famous contemporary, Dr. Mead of London, to command what was still, as a regular fee, the comparatively rare sum of a guinea. "The person suffering from pleurisy," he advised, "must take a ball of horse-dung, well dried, beat it into powder, drink it, and he will be cured." On another occasion he prescribed for a child "the juice of 20 wood-lice squeezed through a muslin bag, to be drunk twice a day." Universally the excrement of domestic animals and the juice of snails and wood-lice were advocated. A popular cure for whooping-cough was the application of five leeches behind the sufferer's ear; and whitlows were said to disappear after the affected finger had been thrust for half an hour into the ear of a cat. Tremendous stress, too, seems to have been laid upon the number of ingredients employed in a medicine, and even the great Sydenham, who a generation earlier had stood like a rock for sanity and simplicity, had employed no less than 18 herbs in the composition of a single ointment. Somewhere hidden up in all this there was doubtless an element of rough empirical wisdom. Perhaps more evidently there still lingered traces of the occult lore of the Middle Ages. But it is to be feared that the remainder was chiefly the stock-in-trade of a more or less unconscious charlatanism.

So Many Men, So Many Systems.

That is far from denying, of course, the profound and tonic influence of a mind like Sydenham's, or forgetting the results already achieved by exact and unbiassed experiment. In what may be called, perhaps, the higher circles of the very loosely knit medical brotherhood, the researches of Harvey, for instance, on the circulation had long been known and accepted. The thermometer had been discovered and tentatively used, here and there, as a clinical instrument; and the primitive microscope had revealed, 50 years before,

the presence of red corpuscles in the blood. The French invention of the tourniquet, as distinct from the ligature, was of about the same age; and inoculation against small-pox had just been introduced into England by Lady Mary Wortley Montagu—that she-meteor, as Horace Walpole described her—although it was being strongly opposed by the clergy as an interference with the divine prerogative.

With but few exceptions, however, the mind of contemporary Medicine was still largely clouded by the mediæval legacy of formulating in advance some all-embracing hypothesis with which facts and treatment had to be made to square. Thus Professor Stahl, a chemist of renown, and one of Boerhaave's most brilliant pupils, refused to prescribe cinchona bark, because he held that the soul governed the organism by means of the circulation, and that fever was an expression of the soul's efforts to preserve the body from death. His contemporary, Hoffmann, on the other hand—the well-known Hoffmann of Hoffmann's anodyne—seems to have governed his treatment according to a theory that ether was the perceptive soul; that it resided in the medulla; and that fever was a spasm of the blood-vessels, with its origin in the spinal cord. So many men, so many systems, it seems to have been an age of systems, sired, as a rule, by some new fact, misinterpreted or over-exalted, and still mothered by a decaying, if not half-dead, theology.

The Era of Exact Observation.

Preserving our conception, however, of Medicine as an art, that is after all merely a question of method. Largely owing to the influence of Hunter himself, it has been succeeded by an era of exact observation, of the patient collection of innumerable facts, of a general dispersal of inquiry, of the careful tracking down of individual disabilities to their individual causes, and the consequent influx into the studios of Medicine of a hundred different kinds of specialist. Presently this method will change, and nothing is more probable than that some Hunterian orator, 200 years hence, will be marvelling at our blindness to the great synthesis already quivering to be born; at our assiduity in trying to stop up a hundred thousand separate leaks, when some basic principle was staring us in the face, whereby the whole vessel might be made water-tight. On the other hand, he will be unable to deny, I think, the enormous stride into general influence, into the recognition of the community at large, that the art of Medicine has made in these last two centuries.

(To be concluded.)

COLONIAL HEALTH REPORTS.

British Solomon Islands.—From March to May, 1919, there was a widespread epidemic of influenza, with characteristics not previously experienced in the Protectorate, but similar in kind to the pandemic disease found everywhere else. At Tulagi, out of 225 cases there were 8 deaths, but it is impossible to estimate the numbers who died on the other islands. The complications and sequelæ noticed after influenza were for the most part, so far as could be observed, bronchitis, broncho-pneumonia, and pleurisy. Recruiting was stopped for two months, and all indentured labourers were inoculated with vaccine supplied from Melbourne. The natives at large were without treatment except those in the vicinity of Government or Mission stations. Admissions to Tulagi Hospital numbered 520, of whom 35 were Europeans and 485 natives. The number of deaths was 30. 4436 out-patients were treated. Malaria in its various manifestations and dysentery affect Europeans and natives equally, and during 1919, a year of exceptional sickness, few escaped. The absence of any organised native administration and lack of transport make it impossible to obtain accurate returns of the population, but district officers have devoted much time and attention to the matter, and on some islands careful records of births and deaths have been made. They all show a diminishing birth-rate, the most serious loss being on San Cristoval with 401 deaths and 241 births. Depopulation is attributed to various causes, amongst which must be placed the epidemics of dysentery and influenza. Amongst non-natives 7 deaths were recorded during the year and amongst indentured natives 104 deaths, giving a death-rate of 19 per 1000.

Ashanti.—Mr. Arthur J. Philbrick, as acting Chief Commissioner, is responsible for a report recently presented to Parliament dealing with the affairs of Ashanti for the year 1919. He states that the population, which at the Census taken in 1911 was 287,814, has undoubtedly increased considerably since that year in spite of the large number of deaths from influenza in 1918. The population of Coomassie, the capital, is increasing, and may be estimated approximately at 26,000. The provincial medical officer reports that the general health of the European and native population continued good throughout 1919. There was no epidemic, with the exception of a mild form of influenza in November. The most prevalent diseases were those of the digestive system, bronchial affections, ulcers, and malaria. Venereal diseases were most pronounced amongst the soldiers in Coomassie. The native population suffer chiefly from gonorrhœa, &c., but the establishment of a venereal clinic in connexion with the native hospital cannot fail to give satisfactory results. Two cases of small-pox were treated in the Contagious Diseases Hospital. Leprosy is stated to be common. The natives are not alarmed at it, and mingle freely with lepers, for whom it is intended to provide an agricultural settlement. The total rainfall during 1919 was 37·08 inches at Coomassie (the lowest for ten years), 41·30 at Sunyani, 79·58 at Kintampo, and 45·28 at Obuasi. The number of European in-patients treated in hospitals during the year was 100, and that of native in-patients was 1511; the European out-patients numbered 34, and the native out-patients 11,706.

Gambia.—No complete vital statistics for the Colony or Protectorate are available, but in Bathurst, the chief town, the death-rate in 1919 was 35·28 per 1000 of population. Malaria has decreased considerably, but venereal disease, tuberculosis, and amœbic dysentery are stated to be on the increase. The tsetse fly abounds in many parts of the territory. The natives appear to have become immune to a great extent. Four cases of sleeping sickness, with 2 deaths, were reported in Bathurst in 1919. The area of the Gambia is 4132 square miles—rather larger than Cornwall and Devon together. The population is estimated at about 240,000, of whom 8000 live in the capital—Bathurst—at the mouth of the river. The inhabitants belong to a number of tribes with widely differing racial characteristics, and speaking different languages. The European population is less than 200, composed of officials, traders, and a few missionaries. The climate is less unpleasant than that of the other West African colonies, though it does not follow that it is more healthy. The mean temperature is 77°, with a mean daily range of 15°. Rain falls between June and October. For some cause which has not hitherto been explained the average annual fall is diminishing.

A TUBERCULOSIS RECORD CARD.

DURING discussion on the report recently drawn up by tuberculosis officers in the London area, the necessity became apparent for clinical records to be kept in a uniform manner in order to be interchangeable as well as comparable. In the course of the year many tuberculous patients pass from one district to another and without some simple and convenient record much time is lost and previous investigation wasted. The main facts to be recorded being agreed upon a card was devised on which the information about a case was divided into linear groups consolidating the records under the heads of: (1) Diagnosis, (2) Grounds for Diagnosis, (3) Important Dates, (4) Personal History, (5) Family History, (6) Social Conditions, and (7) Treatment. Provision is thus made for the compilation of statistics in each division, the figures for the year being readily calculable. The reverse of the card provides for a history of the treatment and its results with space for four sets of chest diagrams to be filled in at stated intervals: (1) condition when case is first seen; (2) condition on discharge from sanatorium; (3) after 12 months; (4) after 2 years. At the bottom of the card is a key to the uniform method of recording physical signs in the chest. Dr. H. E. Ellis informs us that Carter-Parratt, Ltd. (2, Farringdon-avenue, Shoe-lane, London, E.C. 4), have had the cards printed for their patent "Bizada" overlapping card system, whereby the names can be seen at a glance, and either side of the card consulted. The system of record marks an advance on the present practice, and it is hoped that the London County Council may recommend its adoption as a first step towards the unification of tuberculosis statistics.

THE LANCET: SUBSCRIPTION RATES.

INLAND	One Year	£2 2 0
	Six Months	1 1 0
	Three Months	0 10 6
ABROAD	One Year	£2 10 0
	Six Months	1 5 0
	Three Months	0 12 6

Subscriptions may commence at any time, and are payable in advance. Cheques and P.O.'s (crossed "London County Westminster and Parr's Bank, Covent Garden Branch") should be made payable to Mr. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C. 2.

ADVERTISEMENT RATES.

Books and Publications ... ... / Official and General Announcements / Trade and Miscellaneous Advertisements ... ... — Four Lines and under... ... 5s. 0d.

Every additional line, 1s.

Quarter Page, £2 10s. Half a Page, £5. Entire Page, £10.

Special Terms for Position Pages.